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ABSTRACT

Three broad categories were identified among 340 occupations at the four-digit level of the Australian Standard Classification of Occupations: positively/opportunistically engaged in the global economy (conceptual/creative, conceptual/technical); vulnerable (manufacturing, white-collar clerical, blue-collar operative, manual low skill); and insulated (vocational trades and in-person professional, skilled, and low skill). Analysis of Australian Bureau of Statistics data from 1986-2000 using these classifications revealed the following: (1) the Australian work force is 21% positively engaged, 35% vulnerable, and 44% insulated; (2) 62% of males and 47% of females are exposed to global competition; (3) the proportion of insulated and positively engaged workers rose slightly and vulnerable workers fell from 39% to 35%; (4) workers with vocational qualifications were underrepresented among the positively engaged; (5) although part-time and contingent employment grew faster than full time, especially in insulated occupations, the most rapid growth was in full-time positively engaged; (6) strongest growth in positively engaged was among workers 35-54, whereas younger workers declined in this group; and (7) manufacturing occupations have stagnated, whereas some vocational trades experienced continual growth. These two potential paths were discerned: increasing preparation for conceptual/creative and conceptual/technical occupations and/or maximizing job creation in insulated occupations. (Contains 6 tables and 24 figures in the text; appendices include 10 figures of trends by employment group and the classification of 340 occupations.) (SK)

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CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

Australians Working in a Global Economy and What This Means for Education and Training

Leo Maglen

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CEET, Faculty of Education, Post Office Box 6,Monash University, Victoria 3800, Australia
Telephone 61 3 9905 9157 Facsimile 61 3 9905 9184 Email ceet@education.monash.edu.au
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CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

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Directors

Gerald Burke (Professorial Fellow, Faculty of Education, Monash University, Executive Director); Phillip McKenzie (Principal Research Fellow, ACER); Leo Maglen (Professor of Vocational Education and Training, University of Melbourne); and Chris Selby Smith (Professor, Department of Management, Monash University).

Research Staff

CEET has four Senior/Research Fellows: Damon Anderson, Fran Ferrier, Michael Long, and Chandra Shah. Julian Teicher (Executive Director, National Key Centre in Industrial Relations, Monash University) is an Associate of the Centre.

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CEET, Faculty of Education, PO Box 6, Monash University, Victoria 3800, Australia
Telephone: 61 3 9905 9157 Facsimile: 61 3 9905 9184 Email: ceet@education.monash.edu.au
www.education.monash.edu.au/centres/CEET

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Australians Working in a Global Economy and What This Means for Education and Training

1. Introduction

This report is part of the ongoing CEET program investigating the impact of the emergence of the global knowledge based economy on employment patterns in Australia, (see Maglen, 1994; Maglen and Shah, 1996 and 1998; Maglen and Hopkins, 2000, Maglen, 2001). However, it also represents a significant departure from previous studies, because it looks directly at the nature and extent of the actual and potential participation of Australian workers in an increasingly globalised series of labour markets. We believe this is the first such study in Australia that has explicitly adopted this as its focus.

Taking this approach has involved a re-alignment and extension of the occupational classification system developed for our previous studies under this project. The results, however, are encouraging. We believe they provide an important insight into the opportunities and threats that globalised labour markets are creating for Australian workers. There are, too, important lessons to be drawn out of this study for education and training, particularly for the VET sector.

2. Major findings

- Although the degree of exposure of Australian workers to global competitive labour market forces is more of a spectrum than a case of either/or, we estimate that currently about 4.9 million, or fifty six percent of the Australian workforce, could be said to be employed in global labour markets. The remaining 3.9 million, or forty four percent of those employed in 1999-2000, by virtue of the nature of their jobs, their locational character and prevailing technological constraints, were essentially insulated from the direct impact of global competitive forces. Workers in these occupations do, however, depend for their continued employment upon the income patterns, purchasing power and preferences of those who are more directly engaged in global labour markets.

- Those that are competing in global labour markets can be broadly divided between those for whom globalisation has opened up opportunities and those for whom it has posed a threat and has made their jobs more vulnerable. We estimate the former group of occupations to currently account for approximately 21 percent of Australian workers and the latter 35 percent. That is to say, that whilst about a fifth of Australians in work are in a position to take full advantage of being in a global labour market, over one third are threatened by this exposure.

- A much greater percentage of male workers are exposed to global labour market forces than are female workers (62 percent compared to 47 percent). Proportionately more are positively and opportunistically exposed (27 percent as against 14 percent), but more are also in more vulnerable jobs as well (36 percent compared to 33 percent).

- As to whether Australians are more or less exposed to global labour market forces, the evidence is mixed. Whilst our study shows that over the period 1986-87 to 1999-2000 the proportion of workers in insulated occupations rose slightly, from 42 to 44 percent, it also shows the proportion positively and opportunistically exposed rising from 19 to 21 percent. Vulnerable occupations, on the other

hand, fell from 39 to 35 percent of the total. Employment grew most rapidly amongst those occupations most opportunistically and positively exposed to global competitive forces as well as amongst those most insulated. The difference, however, was that the strongest growth within the former group of occupations was in full-time employment, whereas the strongest growth in the latter was in part-time and contingent employment. Levels of employment in those occupations that were most vulnerable to global competitive forces stagnated and declined over the same period.

- Employment in the most vulnerable occupations was hardest hit by the recession of the early nineties in Australia, and had barely recovered its pre-recession levels by the end of the decade. In contrast both positively and opportunistically exposed occupations, and those more insulated from global forces, were less effected by the recession, and recovered strongly after it.

- Whilst the majority of workers in the conceptual/creative occupations in 1999-2000 had post-secondary educational qualifications, particularly at the degree level and above, lack of these qualifications did not appear to pose an insurmountable barrier to participating opportunistically and positively in global labour markets. What is noticeable, however, is that workers with vocational qualifications (at the certificate and diploma level) appeared to be under-represented in this crucial growth area of employment. The association between education level and occupation appeared strongest in the professional in-person group of occupations and amongst the trades. With the former, the association was with university qualifications, with the latter it was with basic and skilled vocational certificates and diplomas. It would appear therefore, that VET is not yet a major source of preparation for positive and opportunistic participation in global labour markets, and that its chief role continues to be supplying entrants to either the most vulnerable of occupations or to those that are not directly engaged in global labour markets.

- All fields of study are represented amongst those actively or potentially engaged in global labour markets, although relatively underrepresented were the fields of health and education.

- This study identifies two occupational groups that have the potential to participate in global labour markets most opportunistically and positively. These are the conceptual/creative group of occupations, and the conceptual/technical occupations that are related to them and to a large extent support them. Conceptual/creative occupations employed sixteen percent of workers in 1999-2000 and the conceptual/technical group employed five percent.

- Four distinct occupational groups have been identified as being most vulnerable as global labour markets develop – skilled manufacturing trades, blue collar operative occupations, white collar clerical occupations and manual low skilled occupations. These respectively accounted for four, eleven, eight and twelve percent of those employed in 1999-2000.

- Similarly, the study identified four broad occupational groups that, because of their locational or person-to-person nature, have up until now remained largely outside of and insulated from global labour markets. These are professional in-person occupations, skilled in-person occupations, low-skill in-person occupations, and the locational trades. Respectively they accounted for eight, fourteen, fourteen and eight percent of those employed in 1999-2000.

- Changes in employment patterns over the period 1986-87 to 1999-2000 are fully consistent with Australians increasingly joining or coming under the influence of global labour markets. The fastest growth experienced across the ten broad occupational groups identified by this study was on the one hand in the conceptual/creative group and on the other in the low-skill in-person group. Low and even negative rates of growth were experienced in the most vulnerable areas of employment, particularly in the manufacturing trades and amongst the blue-collar operative occupations.

- Male and female workers are differently exposed to global labour market forces. Employment in traditionally male dominated areas such as the manufacturing trades and the blue collar occupations, have been hardest hit by the growing exposure to competitive global labour market forces. However, male conceptual/creative workers were the major beneficiaries of their positive exposure to globalised markets. Female employment, on the other hand, whilst it has tended to be concentrated in the more insulated areas of the labour market, has everywhere grown at a faster rate than that of male employment. This is particularly evident amongst the conceptual/creative occupations. Whilst coming from a lower base than their male colleagues, females appear to be responding to the opportunities created by globalisation of labour markets at a faster rate.

- Changes in the overall patterns of employment over this period have masked considerable differences between full-time, part-time and contingent employment. Part-time and contingent employment have both grown at a faster rate than full-time employment. However, those most positively and opportunistically engaged in global labour markets have tended to be employed on a full-time basis (indeed on an increasingly over full-time basis) and this is where the most rapid growth has been. On the other hand, much of the growth in employment in insulated areas of the labour market, particularly at the lower skill levels, has been on a part-time and contingent basis. Other traditional areas of full-time employment, for example in the manufacturing trades and in white collar clerical and middle management jobs, have tended to stagnate and decline.

- By far the strongest growth in employment in occupations most positively and opportunistically exposed to global labour market forces has been amongst workers in their middle career years (between the ages of 35 and 54). Whilst those in their early career years (between the ages of 25 and 34) have also participated strongly in the growth of conceptual/creative employment, what is equally striking is that there has been a marked decline in the participation of younger workers (between the ages of 15 and 24) in these occupations. Indeed, employment amongst those in their early and later training years, (that is between 15 and 19, and 20 and 24), has shifted away from full-time employment across the broad spectrum of occupations, but has grown at a rapid rate on a part-time and contingent basis in the low-skill in-person and manual occupations. Whilst much of this change in employment patterns amongst young workers can be explained in terms of their increased participation in full-time and part-time education and training over the period, and their preference for less demanding forms of employment as a means of supporting their studies, what it also shows is that young people, contrary to much of the imagery, are not major participants in the emerging competitive global labour markets.

- Amongst the conceptual/creative occupations, the fastest growth has been, not surprisingly, amongst information technologists and financial specialists.

However, strong growth has also been experienced in the arts, media and entertainment occupations. The weakest growth amongst these occupations has been in those directly related to manufacturing and engineering outside the construction industry. Negative growth was experienced amongst conceptual/creative occupations in the agricultural sector.

- Trends over the period show that whilst employment in the manufacturing trades has stagnated and declined, there has been continued growth amongst some of the locational trades. This was particularly the case in the building and construction trades, in gardening and horticulture, cooking and baking, and electronic servicing.

3. Background

3.1 Globalisation of the Australian economy

This project follows up on the proposition that if Australia has to compete in a global economy – if more and more Australian firms outside the traditional export industries are having to compete successfully against those operating in other countries - then so too, are more Australian workers.

If the global economy is increasingly a knowledge-based economy then more Australian workers have to be able to compete with knowledge workers globally.

If this is the nature of the world we live and work in then we should be able to see evidence for it in changing employment patterns in Australia.

Since the early to mid 1980s Australia has opened itself up to world competitive forces. This has primarily involved:

- reduced tariffs and other forms of trade protection
- financial deregulation
- floating the Australian dollar
- eased restrictions on foreign investment
- labour markets moving away from central wage fixing to enterprise and individual bargaining etc.
- other micro-economic reforms and the introduction of competition policy
- taxation reform

Over the same period the world economic environment changed. Australia, and its enterprises and workers have had to adapt and respond to:

- rapid technological change – especially in IT and telecommunications and their convergence through digitalisation
- the liberalisation of world trade through the World Trade Agreement
- the floating of all major trading currencies
- globalisation of financial markets and the proliferation of financial instruments
- growing dominance of direct foreign investment over portfolio investment
- changes in the global corporate response (1) - if entities have to compete globally, then they have to be structured globally, hence

the emergence of giant global oligopolies through merger and takeover

- changes in the global corporate response (2) - the adopting of corporate strategies that enhance competitiveness - flatter, less-hierarchical management structures; devolved operational and financial responsibilities; downsizing and outsourcing; leaner and 'smarter' production processes, the phasing out of Taylorist and Fordist work practices, and so on.[1]

All up, employment in Australia now takes place in a different ball-park to what it did fifteen or so years ago.

Where have the changes occurred? How many have been effected? Who have tended to be the winners - those whose worlds have been opened up by globalisation? Who have been the losers – those who have come under threat?

3.2 What are global labour markets?

For employment patterns in Australia to be seen as the outcome of increasing participation by Australian workers in global labour markets requires acknowledging:

- Australians are increasingly part of the world *supply* of labour - where our strengths, skills, knowledge etc. are pitted against those of people in other countries
- the *demand* for Australian workers is increasingly determined not just by local or national considerations but by global factors, and by global clients and customers
- the *price* Australian labour can command more and more is determined by interaction of global demand and supply – ie Australian wage and salary levels and the costs of employing labour in Australia are increasingly referenced to those applying in other countries, and so cannot get too far out of line with those of our competitors in the rest of the world.

There are, of course, different levels of engagement in global labour markets, and different bases upon which Australians actually, or potentially, compete in them.[2]

For some, probably only a small number, of those participating in global labour markets competition is direct - that is, they sell their labour directly on to the world markets. Consultants, international sportspersons, artists, musicians and other entertainers are examples of this category of Australian worker. Much more likely, however, Australians compete on global labour markets through the goods and services their enterprises produce. This can be very close up, with small Australian-based firms selling services, or goods/services such as software, systems, etc, directly onto the world market. At the other end of the spectrum is where Australians

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[1] There are now many books and articles tracing the rise and nature of globalisation. For perhaps one of the best, see Thomas Friedman *The Lexus and the Olive Tree* (2000).

[2] This analysis confines its attention to the nature and extent of Australian workers' participation in global labour markets, if they remain located, or are at least based, in Australia. A small, but growing, number of Australians participate in global labour markets by relocating more or less permanently to other countries. These include returning migrants, those who are part of the 'brain drain,' mostly to North America and Europe, and those whose global employers have despatched to distant posts in their far-flung empires. Those who do leave in these ways for our purposes cease to be part of the Australian labour force.

are employed in large multi-national enterprises that have based part of their global operations in Australia.

For some, being part of global labour markets involves a lot of international travel, and even temporary relocation to other parts of the world. For many it means that an increasing amount of what they do involves dealing with employers, colleagues, customers, clients, suppliers etc electronically - through telephone, fax and, increasingly, through the internet. Global labour markets are increasingly cyber-markets. For others, however, the global connections may remain at one or more steps remove, as it is the goods and services they help produce that are traded globally.

In thinking about the nature and extent of Australia's participation in global labour markets – the key concept is *substitution* – that is, the extent to which the labour of an Australian worker is a substitute for that of someone located overseas. This depends in large measure upon how similar or different his or her skills, knowledge and attributes are, how wide-ranging and effective the labour market information system in place is, how keen buyers are to employ them and how practical it is for them to do so.

If there is nothing much to distinguish an Australian from a foreign worker, that is, if there is a high degree of substitution possibility, then the cost of hiring the Australian becomes the critical issue – the higher the cost relative to those of their overseas counterparts – the more likely buyers will turn elsewhere.

Enterprises can respond to this either by relocating operations elsewhere – to where labour costs are lower – or by raising productivity in their Australian operations (and hence lowering the cost of labour) by investing in more machinery, the latest technology, more streamlined production processes and so on. All of which could mean they employ less labour. Alternatively they could seek to directly lower labour costs by cutting wages and/or workers' entitlements.

These are the Australian jobs most at threat as globalised labour markets expand, and the workers doing them are most vulnerable

If, on the other hand, there are fewer, or not as close, substitutes for Australian labour, then price is not the only basis upon which Australians compete. Rather it may be on the basis of the quality of the goods and services they help produce, good design, innovative technology, delivery, after sales service, etc. Alternatively, the basis of competition could be more direct with workers going head-to-head on the basis of their skill levels, special talents and expertise, on who is the smarter, cleverer, more innovative, more creative, more flexible, etc.

The fewer the close substitutes for Australian labour services and/or for the goods and services they help produce, the more these workers will, or have the potential to, thrive in global labour markets. These are the ones who are most positively and opportunistically exposed to the emerging global knowledge based economy.

An important corollary to the notion of substitution is that of a *gap in the chain of substitution*. This gap is what separates one market from every other market. The gap can be wide or narrow. Take the example of the humble apple. Apple producers compete with other local apple producers – they are close if not perfect substitutes for one another. But apples are also substitutes for pears, oranges and other fruit produced locally. If the price of apples is too high or the quality too low then buyers turn to other fruit. Apples (and for that matter all fruits) are in turn, substitutes for

other foods and therefore compete with them, in price and quality at some level. And food itself competes in the weekly budget against other household expenditures. The gaps in the chain of substitution, therefore – from apples to fruit to other foods to other household items – determine the size and extent of the markets apples compete in. Similarly, effective handling, storage and transport technologies allow apples in one region or country to compete effectively with apple producers in other regions and countries, if artificial barriers between markets (tariffs and other forms of protection and preferential treatment) are not too high, and if prices are favourable. The freer markets are, the more informative and mobile buyers are, and the fewer the barriers between markets, the bigger and more competitive those markets become.

The same applies to labour services.

The level of exposure of Australian workers to global competitive forces varies considerably. We have already noted the cases where globalisation and rapid technological change (and government and corporate responses to them) have greatly narrowed the gaps in the chains of substitution (possibly eliminating them completely) between Australian workers and those offering the same or similar services in other countries. But there are other areas of employment in Australia that, by their very nature, are somewhat insulated from competition from overseas. There are, in other words, significant gaps in the chain of substitution between them and similar markets in other countries, both on the demand and supply side. These are ones where location is a crucial factor, indeed, where close and personal contact between the supplier of labour services and those demanding them is an indispensable characteristic of the market exchange. Being in Australia – or more likely, being in the immediate neighbourhood – is what matters. The local restaurant, supermarket, building contractor, plumber, television repair service, childcare centre, lawyer or GP, is where buyers in the immediate vicinity turn for their particular services, rather than ones located in Helsinki or Honolulu. Competition between the suppliers of these services and their workers and those in other countries either will never take place, or will only do so if technology changes dramatically, or if the price differential becomes so great as to warrant it.[3]

To summarise - we can identify three broad categories of employment in Australia from the perspective of emerging global labour markets- those occupations which have the potential to participate positively and opportunistically, those for which the opening up of Australia to global labour markets poses a threat, and those that, for locational and technological reasons, are still largely insulated.

3.3 The elasticity of demand for Australian labour

Another way of expressing the nature and extent of Australian participation in global labour markets is with the use of the economists' concept of *elasticities*. These are applied to a wide range of situations in which is needed a measure of the *relative responsiveness* of one variable to relatively small changes in another. Elasticities can range in value from zero to infinity.

Four such applications are relevant here:

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[3] The exception to this is those Australians working in this country's international tourism and hospitality industry. These are locational in nature and usually involve a high degree of in-person service. However, to the extent to which they are important in the promotion of Australia as a tourist destination and in building and sustaining its reputation for service, these workers are competing with their counterparts in other countries. In that sense they are not insulated from global labour market forces.

- Price elasticity of demand (ε_D);
- Cross elasticity of demand (ε_{xy});
- Elasticity of substitution (σ_{xy});
- Elasticity of technical substitution (σ_{ab}).

Price elasticity of demand measures the relative responsiveness (proportional change) in the quantity of a good or service demanded to a small proportional change in its price. If the good/service has absolutely no substitute then $\varepsilon_D = 0$. That is to say, demand for it does not either rise or fall with its price - its price, theoretically, could go through the roof and demand for it would remain undiminished. At the other end of the spectrum is the situation where a good/service on offer has absolutely perfect substitutes readily available elsewhere. In that situation $\varepsilon_D \rightarrow \infty$: that is, the supplier can only offer the good/service for sale at the prevailing market price, but can sell all he or she offers at that price. Absolutely no market, however, would exist for it at a price even marginally above that. For the most part, goods/services range between these two extremes, and so too, do the elasticities of demand for them. The fewer the substitutes, the lower ε_D becomes (that is, approaches zero), and the more substitutes that are available the higher ε_D becomes (approaches infinity).

Cross elasticity of demand measures the relative responsiveness of the demand for one good/service (x) to a small percentage change in the price of another good/service (y). Such a measure is useful for determining the degree to which two goods/services are either compliments or substitutes for one another. Those that are substitutes ε_{xy} is positive ($> 0 \rightarrow \infty$), whilst those that are complimentary to one another in buyers' preferences (as are gin and tonic water, for example) ε_{xy} is negative ($< 0 \rightarrow \infty$). If two goods/services are neither substitutes or compliments, or are being offered in markets between which there is no connection then $\varepsilon_{xy} = 0$.

Elasticity of substitution measures the proportional change in the ratio in which two goods/services (x and y) are demanded to a small proportional change in their relative prices. Substitutability is again the key concern. If the two goods/services can be substituted for one another, and hence buyers are flexible and can vary the proportions in which they buy the two goods/services, in response to their changing relative prices, then $\sigma_{xy} > 0 \rightarrow \infty$. If, on the other hand, they are complimentary to one another but not substitutes, and can only be demanded in fixed proportions, then $\sigma_{xy} = 0$.

Elasticity of technical substitution is the same as elasticity of substitution only it is applied to the demand by firms for two inputs (a and b) into their production processes. It can be applied to the inputs of two types of labour (including to labour located in different countries), to labour of any particular type and machines, or whatever. If $\sigma_{ab} > 0 \rightarrow \infty$ managers have the option of varying the proportions in which these inputs are employed, and are therefore more responsive to relative labour costs and/or to the differences in the costs of employing labour and replacing them with machines. If $\sigma_{ab} \rightarrow 0$, this means the proportions in which the two inputs can be employed are more or less fixed, and the possibilities for substituting one with the other as the relative cost of employing them changes are limited.

Table 1 summarises the different values that these four elasticities will have for the three broad areas of employment in Australia that we have identified.

Table 1: Relationship between elasticities and broad occupational categories in employment in Australia

	Broad occupational categories for Australians in a global environment		
	Positive/Opportunistically exposed	Vulnerable	Insulated
Price elasticity of demand for Australian labour	low	high	high or low depending on the nature of the good/service and the level of competition in Australia
Cross elasticity of demand between Australian workers and those elsewhere	positive but low (for some it may even be negative)	positive but high	zero
Elasticity of substitution between Australian produced goods/services and those produced elsewhere	low	high	zero
Elasticity of technical substitution - between Australian workers and those elsewhere	low	high	zero
Elasticity of technical substitution - between Australian workers and machines	zero	high	depends upon the nature of the good/service

4. Methodology

This study takes the 340 occupations identified at the 4-digit level of ASCO (version 2) and divides them initially into three broad groups –

- *The positively/opportunistically engaged group* - those occupations that actually, or have the potential to, interact most positively and opportunistically with the global knowledge economy. They are occupations where being located in Australia does not create a gap in the chain of substitution, that prevents Australians from competing effectively with workers with similar attributes located elsewhere, or vice versa. They are occupations, nonetheless, in which Australians have no perfect or very close substitutes located in other countries, so they are able therefore to market the individuality of their creative talents, conceptual capacities, special expertise, etc, and/or can showcase their goods and services of particular quality and uniqueness for which there is a demand in global markets.

- *The vulnerable group* - those jobs that require skills and involve tasks that are easily replicable. Identical jobs are performed or could easily be performed by workers located in other countries. Foreign workers are, therefore, perfect or very close substitutes for their Australian counterparts. Being located in Australia, moreover, does not, in itself, afford protection from workers located elsewhere. Similarly, the nature of

the skills and tasks involved do not afford protection from being replaced by machines, or from being rendered redundant through reorganisation of production processes without any perceptible diminution of output. These are the ones most vulnerable in a global labour market environment.

- *The insulated group* - those jobs that through their very nature are localised in extent, given current price levels and prevailing technology. Location in Australia, in other words, for the time being at least, constitutes a gap in the chain of substitution between Australian workers in these occupations and those providing the same, or very similar, services in other countries. They are, therefore, largely insulated from direct global competition. Similarly, the personal and/or customised nature of the services they provide give them a measure of protection from the threat of replacement by machines.

Note that these cannot be watertight compartments. There are inevitable grey areas - variations within job categories as well as between them. Moreover, categorisations cannot remain constant. What is required to successfully compete can change quickly in such a dynamic environment as the global knowledge based economy.

Note also that these broad categories are not dissimilar to those first suggested by Robert Reich back in the early 1990s - that of symbolic analysts, routine production workers and in-person service workers. These formed the basis of CEET's previous studies in this project, but, as stressed in the Introduction, the focus and rationale of the occupational classification employed in this report has shifted.

These three categories are further subdivided into the ten occupational groupings shown in Table 2, by adding the further criteria of the nature and level of the skills involved. Details of the categorisation of the 340 occupations into these ten groupings are provided in Appendix 2.

Table 2: Occupational Categories in Global Labour Markets

A. Positive exposure occupations
1. Conceptual/creative
2. Conceptual/technical

B. Vulnerable occupations
3. Manufacturing trades
4. White collar clerical
5. Blue collar operative
6. Manual low skill

C. Insulated occupations
7. Locational trades
8. In-person professional
9. In-person skilled
10. In-person low skill

Positive exposure occupations

1. Conceptual/creative occupations - these are occupations that call for the application of information, knowledge, reason and creativity in the research into and the development, design, production and delivery of sophisticated products and

services, and their successful financing, management and marketing. The major occupational categories within this grouping are shown in Table 3, and their listings are shown in Appendix 2.

Table 3: Sub-Categories of the Conceptual/Creative Occupational Group

Accountancy
Agriculture
Arts, media and entertainment
Civil works, construction and urban planning
Economics and other social sciences
Education/ academia
Engineering
Finance
General Management
Imports and Exports
Information Technology
Management Consulting
Manufacturing
Physical Sciences
Sales and Marketing
Other

2. *Conceptual/technical occupations* - these are occupations that call for the application of information, knowledge, training and experience to a range of high level technical tasks, often in a supporting or complementary role to conceptual/creative occupations. Examples include cartographers and surveyors, technical sales representatives, airline pilots, medical and science technicians, engineering associates, safety inspectors, librarians, personnel managers, etc

Vulnerable occupations

3. *Manufacturing trades* - these are high skill occupations that are centred primarily on the manufacturing sector. They employ such workers as metals, textiles, clothing and footwear tradespersons, engineering tradespersons, vehicle making and assembling tradespersons, millers, butter and cheese makers and confectioners, graphic pre-press tradespersons, glassblowers, boatbuilders, jewellers, etc.

4. *White-collar clerical occupations* - these are medium level skilled occupations, primarily associated with office work. They include, for example, office managers, clerks of one sort or another and their supervisors, typists, word-processing and data entry operators.

5. *Blue-collar operative occupations* - these are semi-skilled occupations located principally in the manufacturing, agricultural and mining sectors and in the utilities and the construction, transport and distribution industries. They include, for example, mobile plant operators, machinists, chemical, petroleum and gas plant operators and supervisors, vehicle assemblers, crane and train drivers, miners and scaffolders.

6. *Manual low skill occupations* - these include a wide range of low skill manual occupations, located across all industry sectors, and cover such workers as labourers, cleaners and caretakers, process workers, store-persons, fishing-hands, garbage collectors, etc.

Insulated occupations

7. *Locational trades* - these include high skill occupations outside the manufacturing sector, and which service primarily local, neighbourhood or regional clientele. The subcategories that have been identified and the occupations included within each are listed in Appendix 2 to this report. They are the building and construction trades; automotive repair trades; electronic servicing trades; electricity supply and distribution trades; telecommunications installation and maintenance trades; horticultural trades; food preparation trades; other trades nei.

8. *Professional in-person occupations* - these include all the professions that primarily require in-person or face-to-face dealing with clients, patients, pupils parishioners, etc. They include, for example, lawyers, medical practitioners, dentists, school teachers, social workers, ministers of religion, etc

9. *Skilled in-person occupations* - these include a wide range of medium to high skill (but not professional) occupations that primarily require in-person or face-to-face dealing with the public, and with clients, customers, passengers, patrons, etc. They include, for example, police and prison officers, nurses and ambulance officers, travel agents and flight attendants, retail managers, sales representatives, hoteliers, club and resort managers, head waiters, croupiers, hairdressers, beauticians and fitness instructors.

10. *Low-skill in-person occupations* - these occupations are at the lower end of the skill spectrum, but still primarily require workers to deal effectively in-person and face-to face with customers, patrons etc. They include, for example, receptionists, sales assistants, barpersons, waiters, bus and taxi drivers, ticket collectors, domestic housekeepers, etc.

Unpublished Australian Bureau of Statistics (ABS) data drawn from its *Quarterly Labour Force Surveys* for the years 1986-87 to 1999-2000 allow these ten occupational groups to be cross-classified by sex, age group and hours worked per week. Unpublished data drawn from the ABS *School to Work Transition Survey* for 2000 allow additional cross-classifications by highest level of educational attainment and field of study. Details of these variables are contained in Table 4.

Table 4: Variables used in cross-classifications with occupational categories

Sex

1. Male
2. Female

3. Both

Hours worked 1986/87 – 1999/2000

1. Fulltime
   - a. Regular — 35 to below 45 hours per week
   - b. Overtime — 45 and over hours per week
   - c. Total — 35 and over hours per week
2. Part-time
   - a. regular — 16 to below 35 hours per week
   - b. contingent — 1 to below 16 hours per week
   - c. total — below 35 hours per week

Age groups 1986/87 – 1999/2000

1.	Early training years	15 to 19
2.	Later training years	20 to 24
3.	Early career years	25 to 34
4.	Middle career years	35 to 54
5.	Later career years	55 and over

Highest level of educational attainment - 2000

1. Less than full secondary
2. Full secondary only
3. Full secondary plus current study
4. Basic vocational
5. Skilled vocational
6. Diploma level
7. Bachelor level
8. Post-graduate

Fields of study - 2000

1. Business and administration
2. Health
3. Education
4. Society and culture
5. Natural and physical sciences
6. Engineering
7. Architecture and building
8. Agriculture and building
9. Other
10. Not stated etc.

5. Results

5.1. Exposure to global labour markets

In 1999-2000 an estimated 4.9 million Australians were working in occupations that were actually or potentially exposed to global labour market forces, of these about 1.8 million were in occupations where such exposure presented opportunities, whilst just over 3 million were in occupations that were vulnerable. The remainder of those that were employed in that year, about 3.9 million, were in occupations more or less insulated from competitive global labour market forces.

Figure 1 expresses these numbers in proportional terms, and compares these with the relative composition of Australian employment fourteen years earlier in 1986-87. It shows that whilst Australia's engagement with the global economy grew dramatically over this period the proportion of workers in occupations essentially insulated from this economy actually rose over the period - from 42 to 44 percent. The nature, however, of Australia's exposure changed significantly over the period. Employment in occupations that are positively and opportunistically exposed to competitive global labour market forces increased both absolutely and relatively - from 19 to 21 percent of employment. On the other hand, employment in vulnerable occupations stagnated and declined, and fell from being 39 percent of the total to 35 percent.

Figure 1.

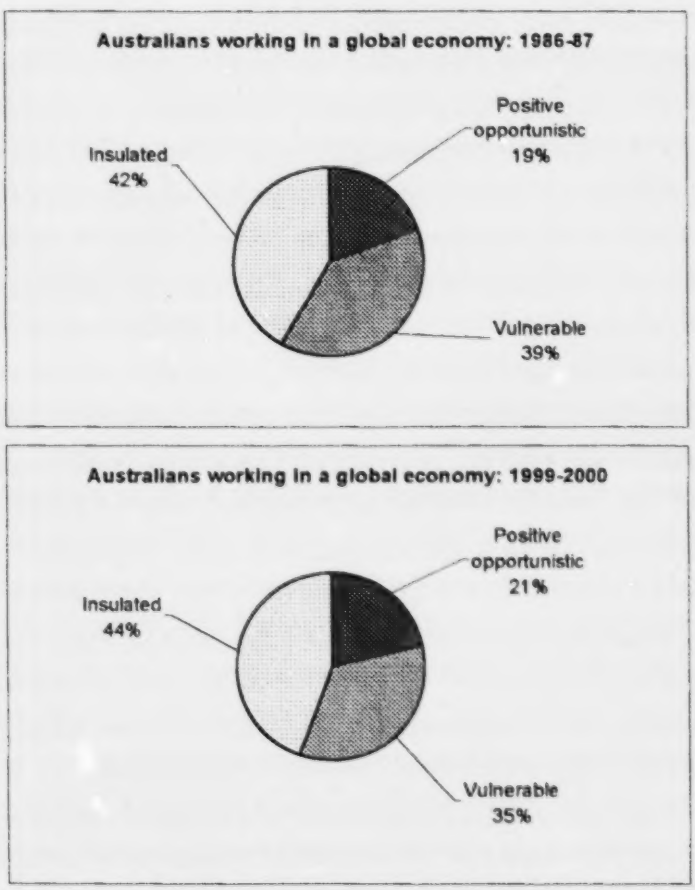

Figure 2

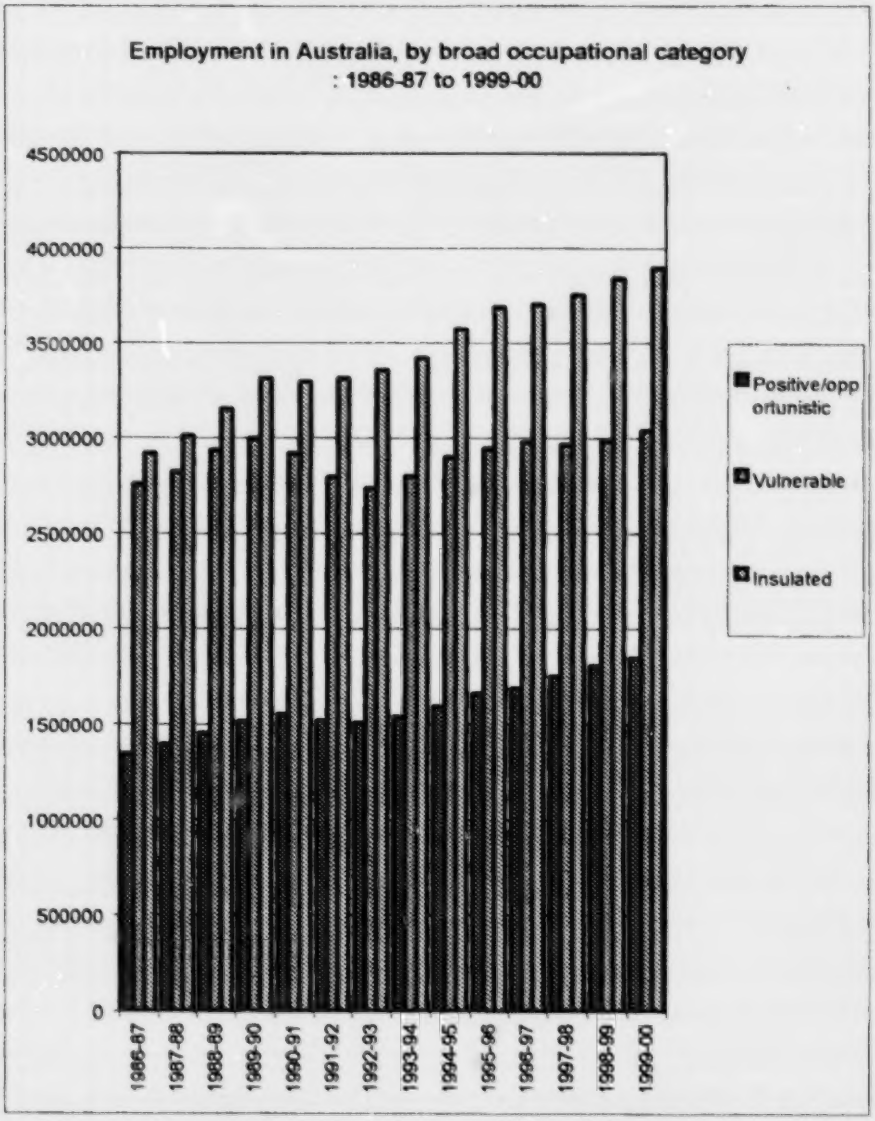

Figure 2 shows that employment in the most vulnerable occupations was hardest hit by the recession in Australia of the early nineteen nineties. It declined steeply from 1990-91 to 1992-93 and whilst it rose after that, had barely recovered pre-recession levels by the end of the decade. Employment in those occupations that are more positively and opportunistically exposed to global labour markets was much less affected by the recession and continued a strong growth over most of the period from 1986-87 to 1999-2000. Similar trends occurred in the more insulated professions.

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The exposure to competitive global labour markets differs substantially between males and females. Whilst males are much more exposed to these forces than are females, 63 percent compared to 47 percent, Figure 3 shows that most of this difference is in the extent to which males and females are positively and opportunistically engaged in competitive global labour markets. Twenty seven percent of males in employment in Australia in 1999-2000 was in positively and opportunistically exposed occupations, whereas only 14 percent of female employment was in the same group of occupations. In contrast, the difference between the proportion of males and females in vulnerable occupations is comparatively small - 36 percent as against 33 percent.

Figure 3.

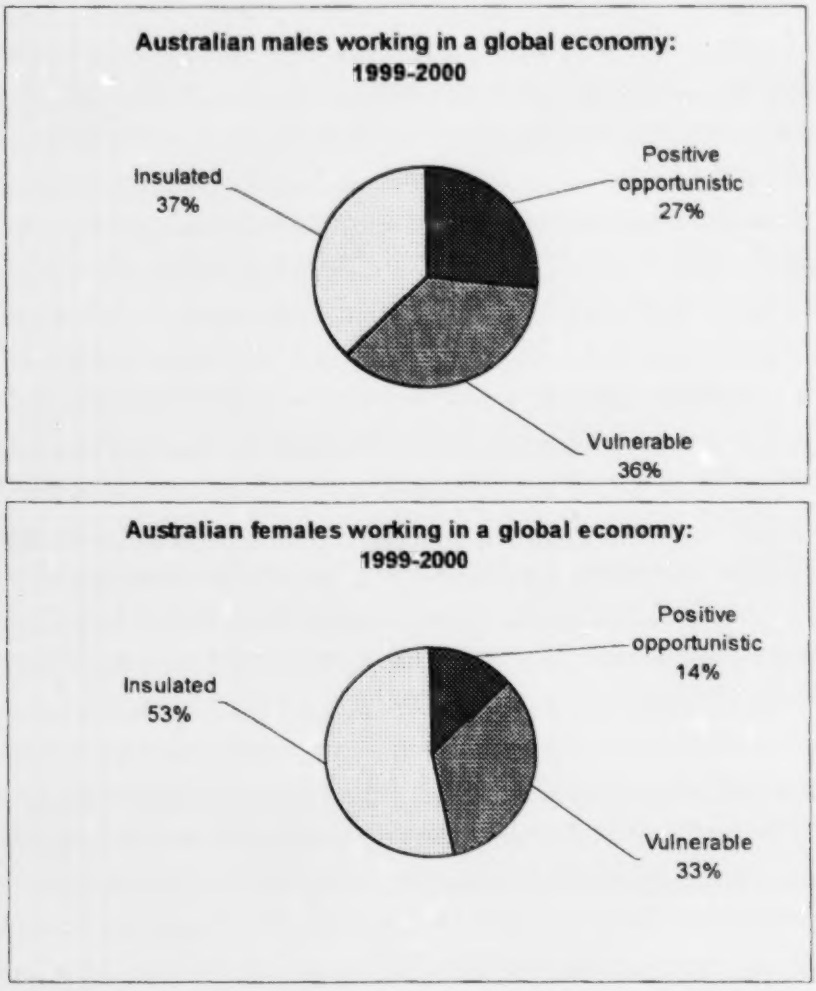
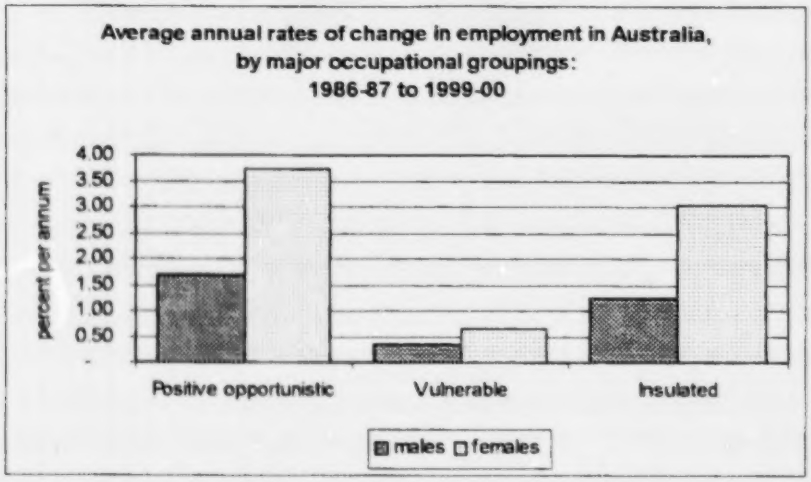
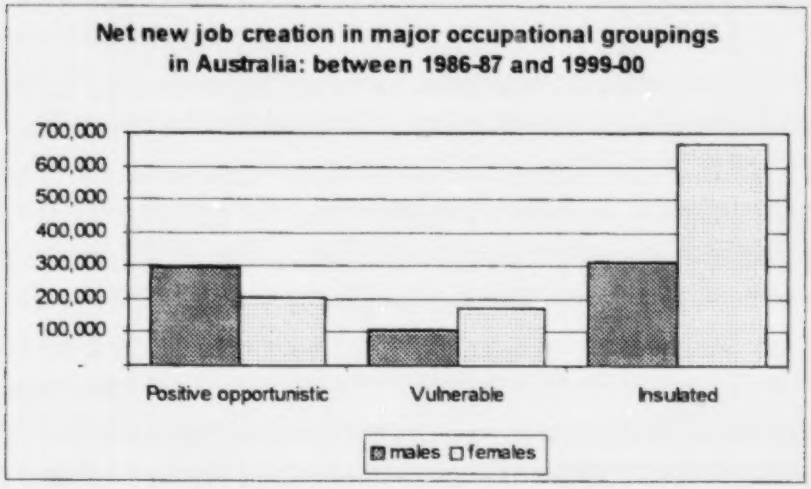


Figure 4.

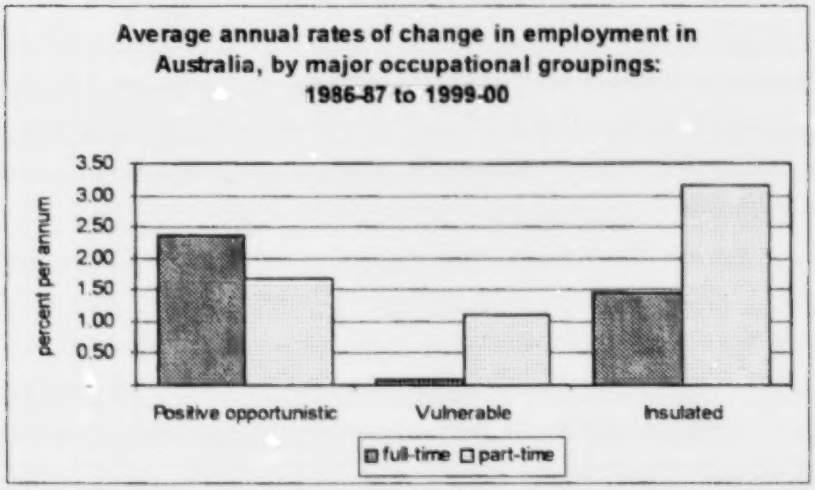




If the degree of exposure of male and female workers to global labour markets differs substantially, so too do the changes that have occurred in their employment patterns in this respect over the period. Figure 4 shows that the much stronger rate of growth in female employment since the mid nineteen eighties, compared to that of males, is reflected in all three broad occupational groupings. The difference in relative growth rates is particularly pronounced amongst the group of occupations most positively and opportunistically exposed to global labour market forces and those most insulated from them. In both instances female growth rates were more than double those of males. However, growth was off two different bases, so that as is evident in Figure 4, the majority of net new jobs created that were positively and opportunistically exposed to global labour market forces were taken by males. On the other hand, the much stronger growth in employment for females in insulated jobs meant that they secured over twice the number of net new jobs created here.

Occupations most positively and opportunistically exposed to global labour market forces tend typically to be fulltime in nature, and the growth in employment in these occupations, as evidenced in Figure 5, has been most strongly fulltime. Fulltime employment in the most vulnerable occupations virtually stagnated over the period between 1986-87 and 1999-2000. The only growth that did occur in these occupations was of a part-time and contingent nature. What is also evident from Figure 5 is that most of the growth in employment in occupations insulated from global labour market forces was also of a part-time and contingent nature.

Figure 5.



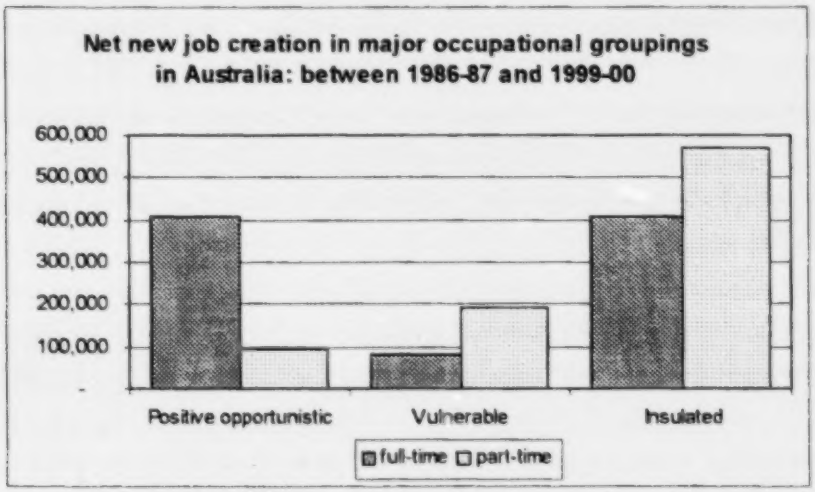
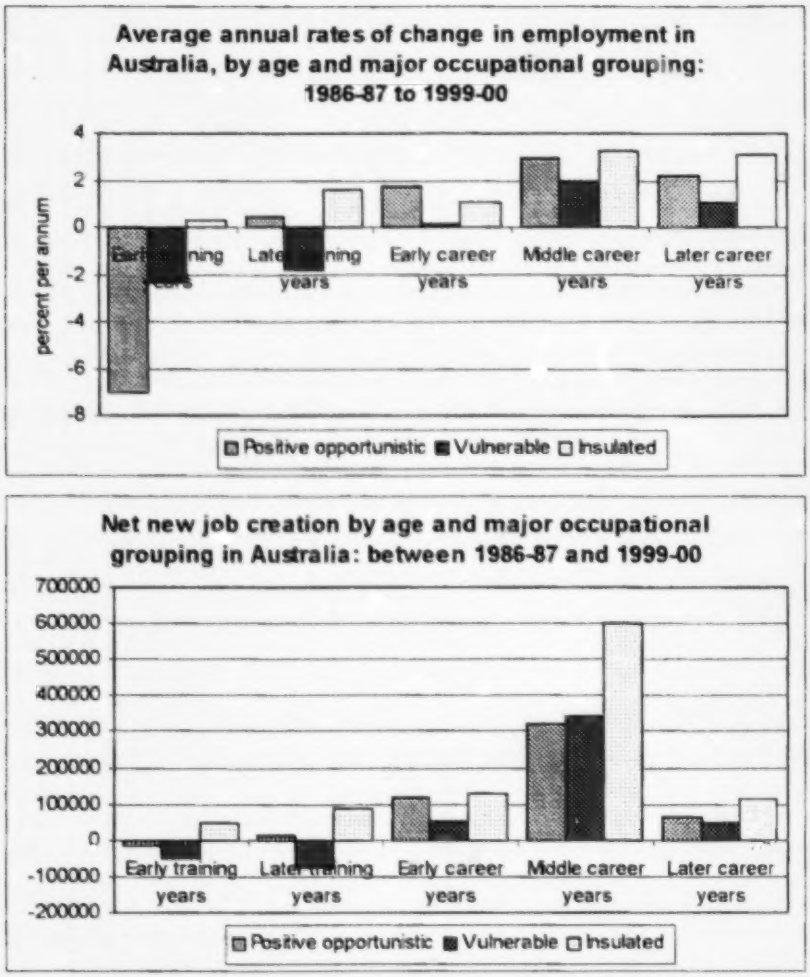


Figure 6



The Australian workforce has aged since the mid nineteen eighties, as the so-called 'baby boomers' have moved through their working lives. Over the same period economic and social changes have seen a greater participation of women, especially older women, in the workforce. Along with these changes has been the growth in full time and part-time education and training and the prolongation of entry into the workforce. The latter has meant that for many young people work is not the main game, rather it is a means of funding their way through their studies. These changes are reflected in Figure 6. It shows that the strongest growth, both absolutely and relatively, in employment over the period 1986-87 to 1999-2000 has been in the middle career years of 35 to 54. What Figure 6 also shows, however, is that over and above these demographic changes, there have been noticeable differences in the extent to which Australians at different stages of their working lives, have participated in global labour markets. In this respect, what is most striking is the low and declining level of participation by young people in their early and later training years (between the ages of 15 and 25). However, not only has the number of young people entering vulnerable areas of employment declined over the period, but perhaps more surprisingly their participation in occupations more positively and

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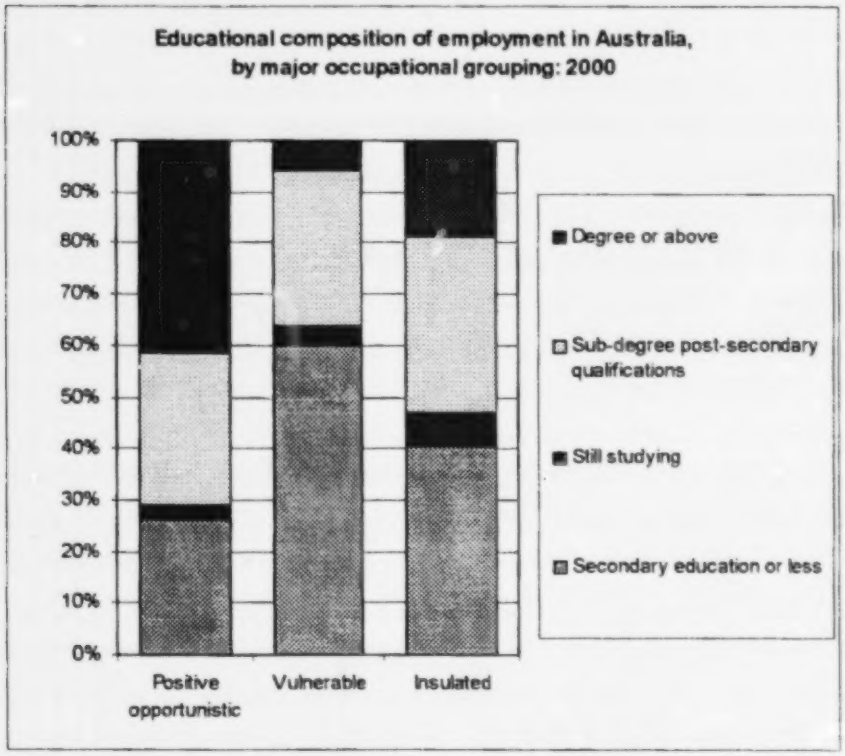
opportunistically exposed to global labour market forces has also declined. Their participation in employment has increasingly concentrated in the more insulated occupations. What is more, that participation has been increasingly within the lowest skill categories of those occupations, and more and more on a part-time and contingent basis. What is clear from Figure 6 is that, up to this point at any rate, older workers, especially those in their mid career years, have been at the vanguard of Australia's most positive and opportunistic participation in global labour markets.

Figure 7



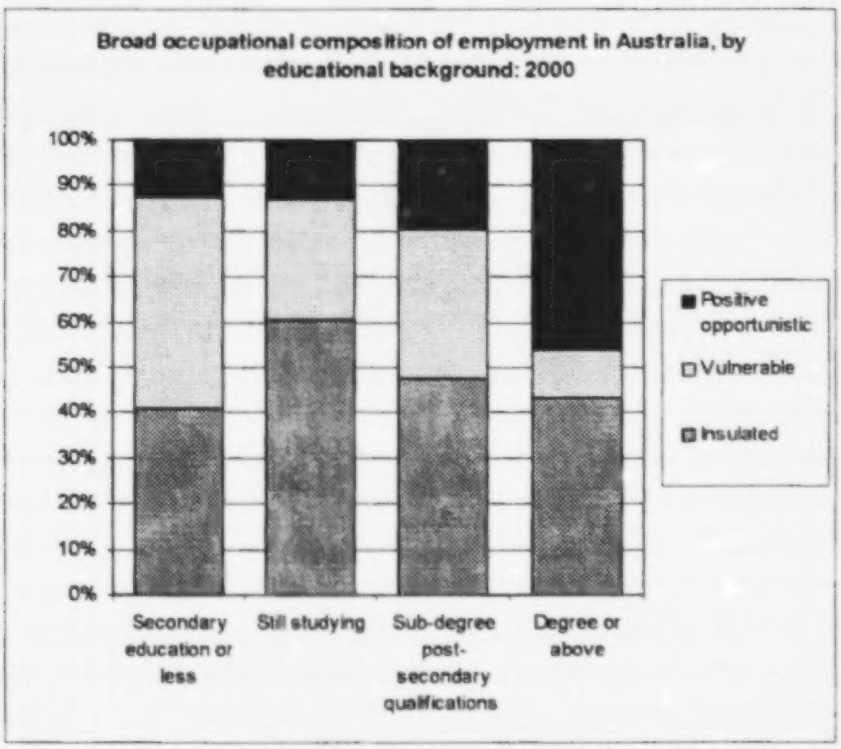
Figures 7 and 8 show that there is some relationship between educational qualifications and the nature and extent of Australian workers' exposure to global labour markets. Figure 7 looks at this relationship from the perspective of the educational background of those in the three broad occupational groupings. It shows substantial differences between them. Whereas, on the one hand the majority of those in vulnerable occupations have low levels of educational qualifications (about 60 percent have no post-secondary qualifications in 1999-2000) the great majority (over 70 percent in 1999-2000) in the positive/opportunistic group of occupations, did have. The difference between the two occupational groups is most marked in the representation of those with degrees and above in their ranks. In 1999-2000 those with university qualifications accounted for over 40 percent of those in occupations most positively and opportunistically exposed to labour market forces but only 5 percent of those in the most vulnerable occupations.

What is also noticeable in Figure 7 is the more or less uniform representation across the three broad occupational groups of those with post-secondary qualifications at

the sub-degree level (that is, those who have certificates and diplomas as their highest qualification). As this level of education qualification broadly corresponds with the VET sector, it shows the general pervasiveness of this level of qualification across broad areas of employment.

Figure 8 both reinforces this picture but also highlights a range of differences. It looks at the relationship between education and occupation from the perspective of the broad occupational groups those with different levels of educational qualifications are employed in.

Table 8



From this perspective we can see that the labour market experiences of those with sub-degree post secondary qualifications are more akin to those with lower levels of education (those with secondary education or less but who are not studying) than they are to those of workers with university qualifications. Whereas almost fifty percent of university graduates find employment in occupations most positively and opportunistically exposed to global labour market forces, only about twenty percent of those with VET level qualifications do so. This compares to the roughly thirteen percent of workers with no post-secondary qualifications working in the same occupations. On the other hand, whereas only about ten percent of university graduates are employed in vulnerable occupations, over thirty percent of those with VET qualifications are exposed in this way.

5.2 Occupational composition of employment in Australia in 1999-2000

This section of the report takes a more detailed look at the composition of the Australian labour force in 1999-2000 using the ten-way occupational classification described in Section 4 and set out in Table 1.

Table 5 shows that in 1999-2000 there were over 1.38 million Australians working in conceptual/creative occupations. This constituted 15.8 percent of those in employment in that year, and was therefore the largest single occupational category. However, if this group of workers represents our spearhead into global labour markets, it was almost counter-balanced by the 1.23 million (14 percent of the total) who were employed in the most insulated and lowest skilled group of occupations. The juxtaposition of these two occupational groups is further contrasted by the fact that whereas the former is male dominated, and mostly requires full-time employment, the latter has a high concentration of female workers and the highest rate of part-time and contingent employment of all occupational groupings.

Table 5 shows that employment in conceptual/creative occupations represents about three-quarters of those that are most positively and opportunistically exposed to global labour market forces. Those working in conceptual/technical occupations, often in support of or in a complementary role to conceptual/creative workers, make up the remainder.

What is also noteworthy in Table 5 is how low a proportion of total employment high-skilled manufacturing trades represent. At 3.8 percent of the total they represent the smallest of the ten occupational groups identified. Twice as many are employed in the locational trades. What is also interesting about this group is they have the highest full-time employment rate of all occupational groups and along with locational trades, by far the lowest representation of female workers.

Table 5. Composition of employment in Australia, by occupational grouping: 1999-00

	Number	Percent	Percent full-time	Percent female
Conceptual/creative	1,384,157	15.8	79.6	26.2
Conceptual/technical	460,946	5.3	74.4	35.1
Manufacturing trades	331,118	3.8	80.1	5.6
White collar clerical	1,005,703	11.5	55.2	79.0
Blue collar operative	678,107	7.7	77.0	11.1
Manual low skill	1,020,521	11.6	49.5	36.3
Locational trades	698,664	8.0	77.1	5.3
In-person professional	732,257	8.3	61.7	67.8
In-person skilled	1,238,064	14.1	63.4	54.7
In-person low skill	1,228,038	14.0	37.3	67.7
Total	**8,777,573**	**100.0**	**63.0**	**43.6**

Figures 9 and 10 show the clear differences in occupational patterns between males and females and between part-time and full-time work as indicated in Table 5.

Differences in employment patterns between males and females, and hence in the nature and extent of their exposure to global labour market forces, are shown in Figure 9. The biggest employment disparities that are apparent are in conceptual/creative occupations and in the manufacturing and locational trades, which are male dominated, and the white collar clerical, in-person professional and in-person low skill occupations which have much higher concentrations of female workers.

Figure 9

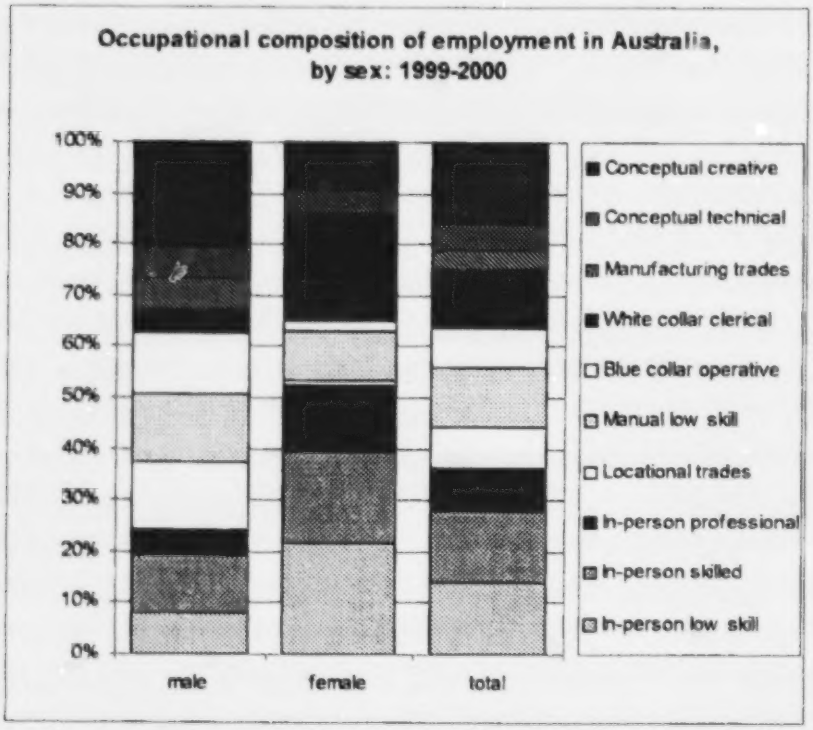


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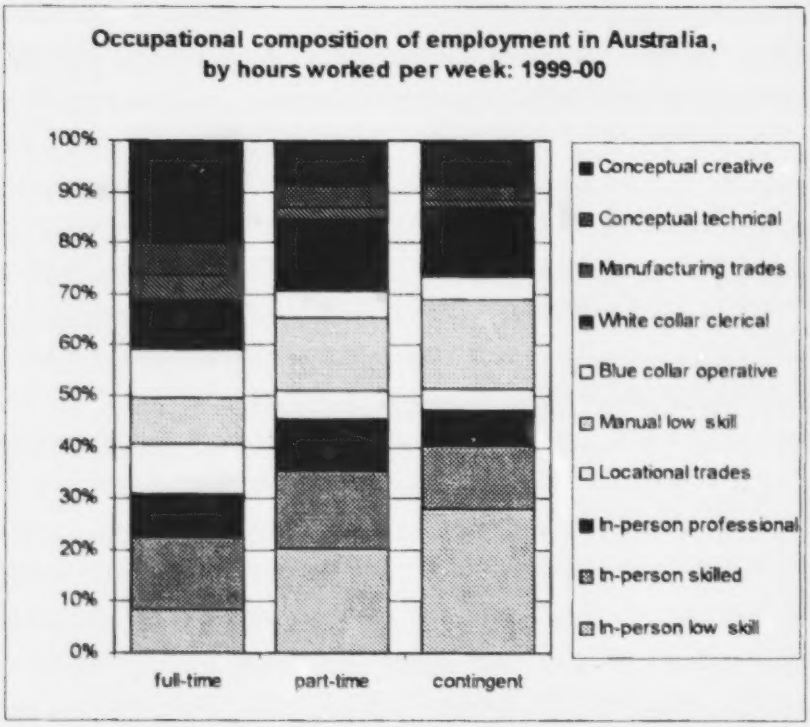
Figure 10



Conceptual/creative occupations are a much more important source of full-time employment than part-time or contingent employment. Indeed, conceptual/creative occupations accounted for twenty percent of all full-time work in Australia in 1999-2000. The other significant area of full-time employment was in in-person skilled occupations. In contrast, as indicated in Figure 10, low-skilled occupations of the manual, but especially the in-person variety, are major sources of employment on a part-time basis and an even greater source of employment on a contingent basis. All other occupational groups display a spread of employment by hours worked per week.

Figure 11

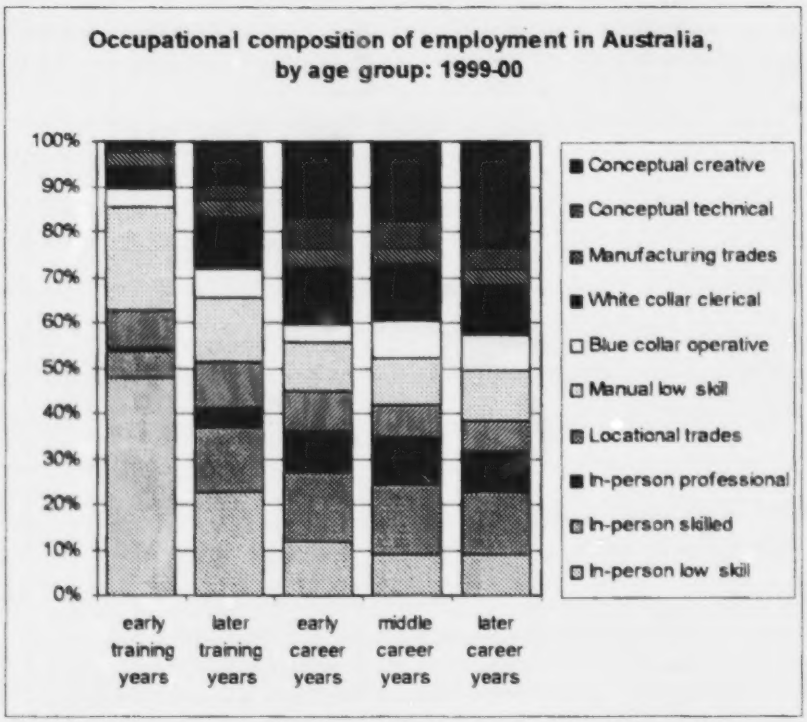


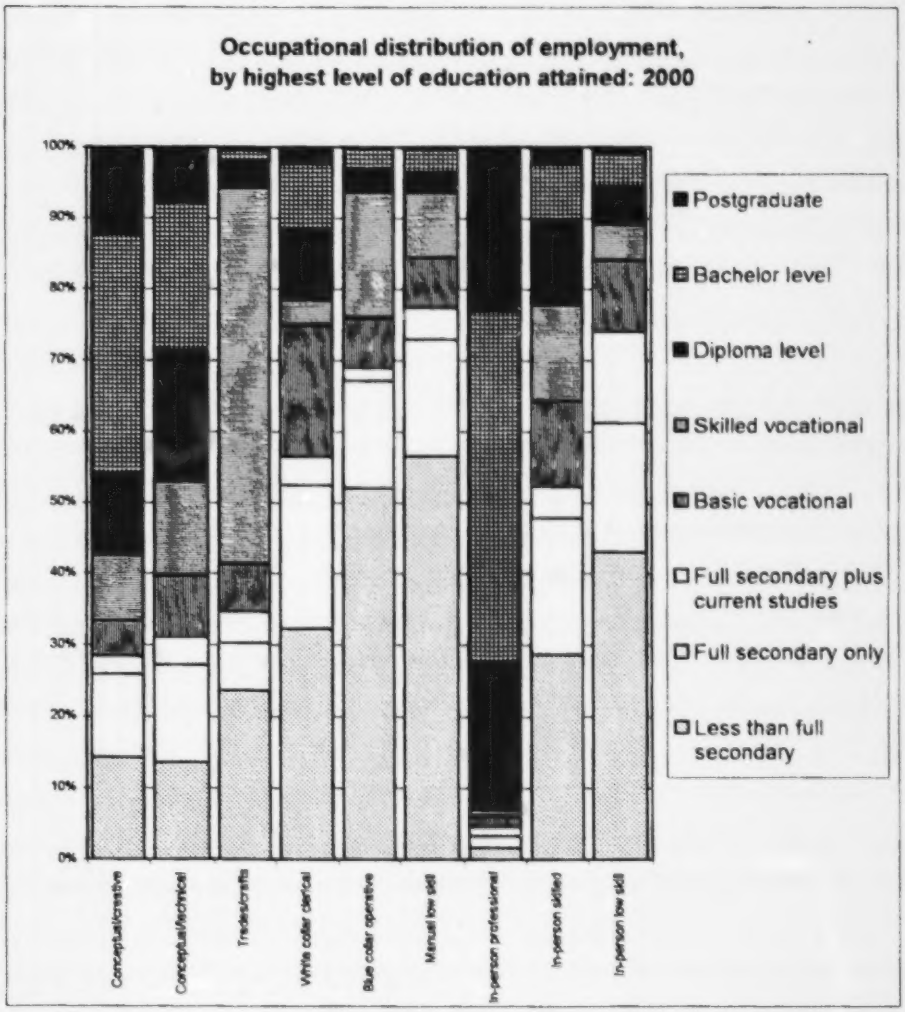
Figure 11 shows how the occupational composition of employment in Australia varies with age group. What is strikingly clear is how relatively insignificant employment in the conceptual/creative occupations are in the younger age groups, but how progressively more important they become in the middle to later career years. What is equally striking is how relatively important employment in low-skilled occupations of the both in-person and manual variety, are for those in the early and later training years, and how progressively less important they are once people move into their career years.

As has already been noted there are some clear explanations for these patterns of employment. For those young people who are still studying on both a full-time and part-time basis, employment , especially on a part-time and contingent basis, in undemanding, low-skill occupations, is attractive as a source of income. For those young people who leave school early without either completing secondary education, or undertaking any further training, these are also generally the only jobs that are available to them. In either case, young people represent a readily available source of low-paid labour in these insulated and vulnerable occupational areas.

What is also apparent from Figure 11, is that contrary to popular conception, participation in globally competitive labour markets is being led by more mature workers, rather than by younger workers. The importance that is being increasingly placed on education and on experience means that for many, entry into global labour markets on a positive and opportunistic basis is delayed considerably.

Figures 12 and 13 show the composition in 1999-2000 of Australian employment in the broad occupational groupings identified by the highest level of education achieved. Note that in both figures the two skilled trade occupational categories have been amalgamated, for presentational purposes. The educational composition of the two groups were virtually the same

Figure 12



In Figure 12 the relationship between education and occupation is seen from the perspective of the educational composition of those in each of the occupational groups. It shows that whilst workers with all levels of educational background are represented in every occupational category, there are also significant differences in the educational composition between occupational groups. It shows for example, that the two trade categories, manufacturing and locational trades groups, are dominated by workers with skill vocational qualifications, and that conversely, there are few in these categories with diploma level qualifications and only a very small minority with university qualifications. The in-person professional group of occupations on the other hand, are dominated by those workers with diplomas,

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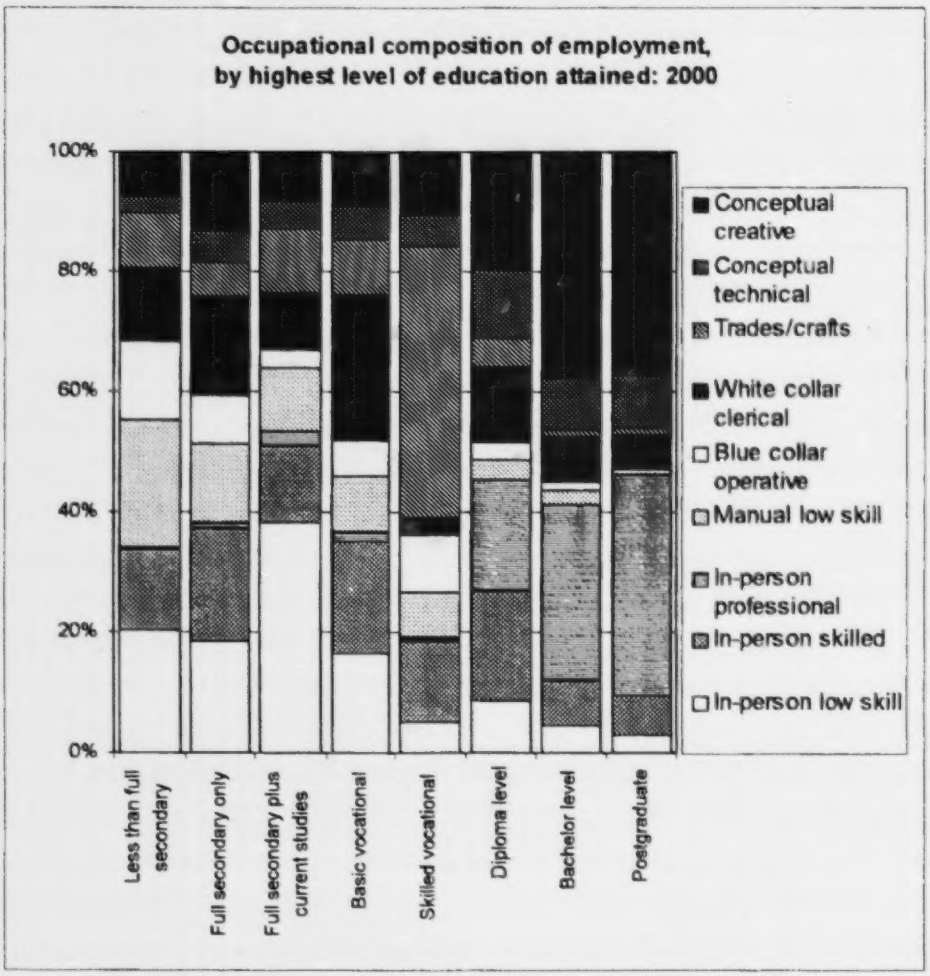
degrees and post-graduate qualifications. The occupational category with the highest degrees of concentration with poorly educated workers are the blue collar operative group, and the low-skill manual in-person group.

It is noteworthy, however, that whilst the majority of those working in the conceptual/creative occupations and a large proportion in the conceptual/technical occupations, have diplomas or better as their highest qualification. There are still a sizeable number in each of these positively and opportunistically exposed occupational groups with educational qualifications below the diploma level.

Figure 13



In Figure 13 the orientation of the relationship between education and occupation changes to that of showing the spread of workers with different educational backgrounds across the occupational categories identified. What is clear from Figure 13 is how much university graduates are concentrated in just two areas of employment – in the conceptual/creative occupational group and in the in-person professional occupations. Figure 13 also shows that not much more than one in two workers with skilled vocational qualifications found work outside the two trade groups of occupations.

Figure 14

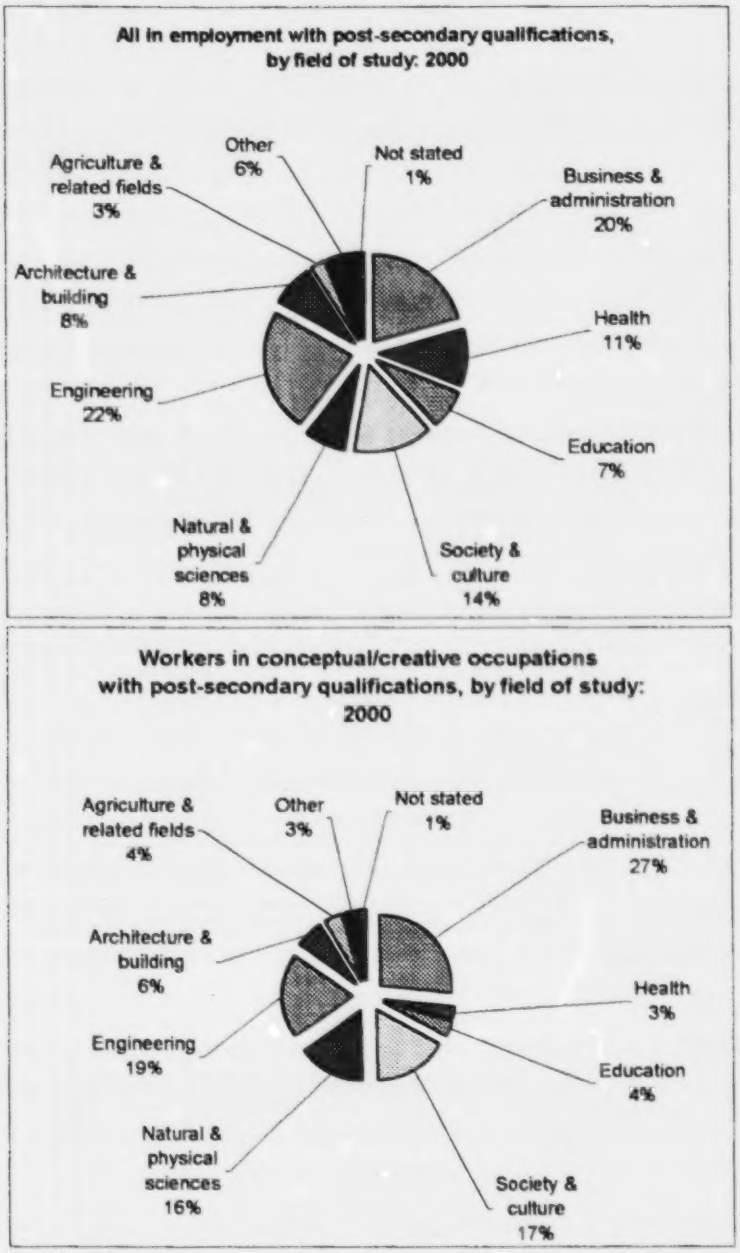

All in employment with post-secondary qualifications, by field of study: 2000
Agriculture & related fields 3%
Other 6%
Not stated 1%
Business & administration 20%
Architecture & building 8%
Health 11%
Engineering 22%
Education 7%
Natural & physical sciences 8%
Society & culture 14%
Workers in conceptual/creative occupations with post-secondary qualifications, by field of study: 2000
Agriculture & related fields 4%
Other 3%
Not stated 1%
Business & administration 27%
Architecture & building 6%
Health 3%
Engineering 19%
Education 4%
Natural & physical sciences 16%
Society & culture 17%

Figure 14 shows the fields of study of workers in all occupational groups with post-secondary qualifications in 1999-2000. It shows that engineering (which includes the technical trades) and business administration together account for about 42 percent (22 percent and 20 percent, respectively) of the total. The natural and physical sciences, on the other hand, account for about only 8 percent, and between them, education and health, about 18 percent.

Figure 14 compares this with the distribution of fields of study amongst those workers with post-secondary qualifications working in the conceptual/creative occupations.

Amongst these workers, engineering qualifications are comparatively less important (down to 19 percent) but business and administration qualifications are even more important (up to 27 percent). The proportion whose field of study is in natural and physical sciences was also comparatively more important (16 percent) but those with health and education qualifications accounted for a smaller percentage (7 percent).

5.3 Changes in the occupational composition of employment in Australia between 1986-87 and 1999-00

This section of the report analyses changes in employment in Australia across the occupational categories between 1986-87 and 1999-00.

Table 6. Changes in the composition of employment in Australia, by occupational grouping: between 1986-87 and 1999-00
(percent)

	1986-87	1999-00	net new jobs
Conceptual/creative	13.9	15.8	23.3
Conceptual/technical	5.3	5.3	5.2
Manufacturing trades	4.9	3.8	-0.6
White collar clerical	12.3	11.5	8.2
Blue collar operative	9.4	7.7	1.1
Manual low skill	12.8	11.6	7.1
Locational trades	8.7	8.0	5.0
In-person professional	8.1	8.3	9.3
In-person skilled	12.5	14.1	20.4
In-person low skill	12.3	14.0	20.9
Total	**100.0**	**100.0**	**100.0**

Table 6 compares the occupational composition of employment in Australia in 1999-00 with that in 1986-87. It shows that all four vulnerable occupational groupings declined in relative significance over this period. The only other occupational grouping to decline in relative significance over this period was that of the locational trades. Conceptual/technical occupations and in-person professional occupations remained virtually constant in relative terms. The other three occupational groups, however, grew quite substantially in relative terms. The strongest growth of all occupational groups in terms of net new jobs created (the difference between total job numbers in 1986-87 and those in 1999-00) was the conceptual/creative group of occupations. It accounted for about 23 percent of all net new jobs created over this period. Between them, however, in-person skilled and in-person low-skill jobs accounted for over 41 percent of net new job creation over the period.

Figure 15 expresses the changes that occurred in employment over the period in terms of the average annual growth rate in employment in each occupational category and in terms of the number of net new jobs created between 1986-87 and 1999-00. It reinforces the picture already presented in Table 6, but whilst conceptual/creative occupations accounted for the greatest number of net new jobs created, the fastest rate of growth was in the in-person low-skilled category.

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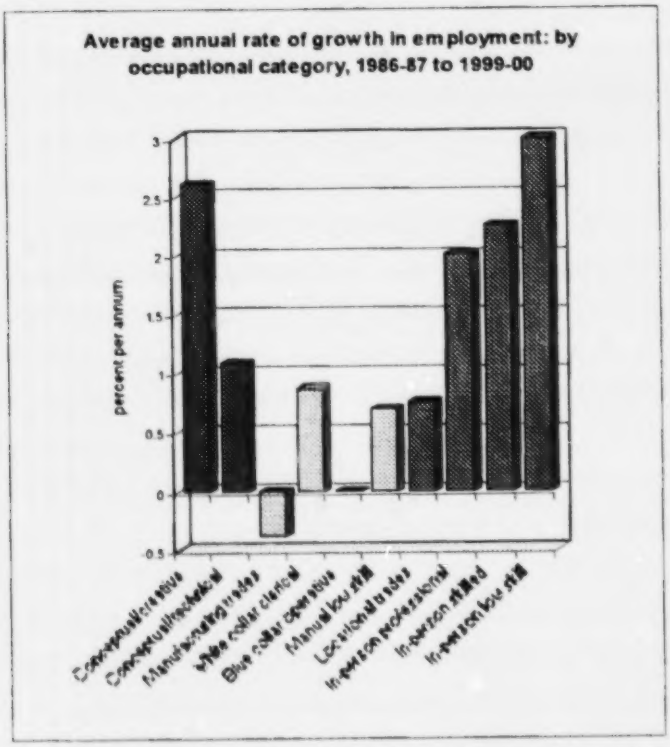
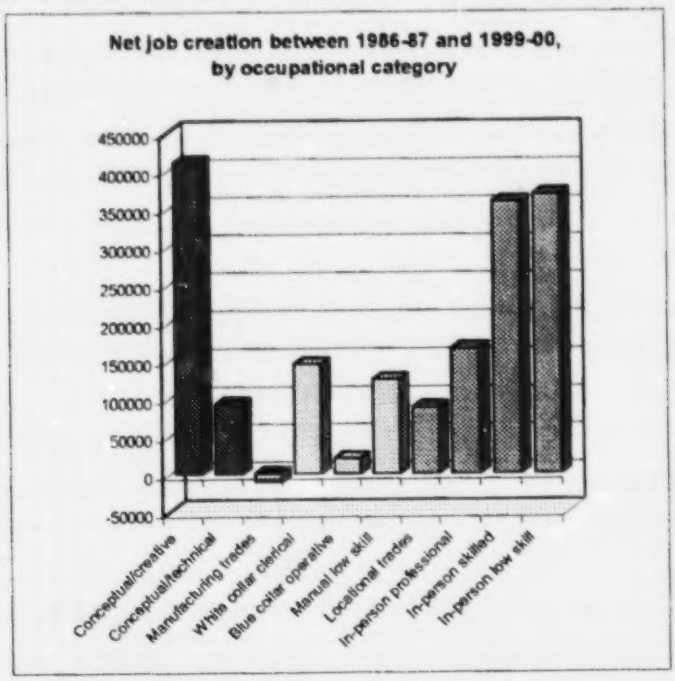
Figure 15





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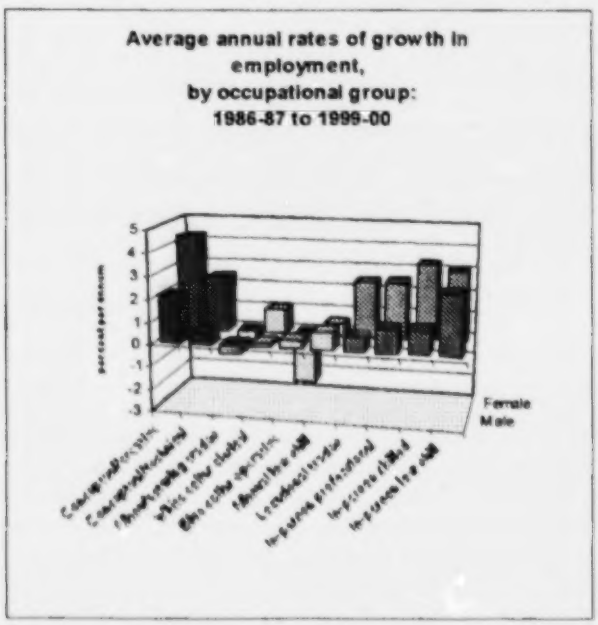
What is also clearly evident in Figure 15 is the marked difference between the experience of the occupational groupings in the three broad categories. Clearly employment in the most vulnerable occupational groups did not perform as well overall as employment in either those occupational groups most positively and opportunistically exposed to global labour market forces or those most insulated from them. The worst performing areas of employment were clearly the manufacturing trades which actually declined over the period and the blue collar operative occupations which remained stagnant.

Figure 16



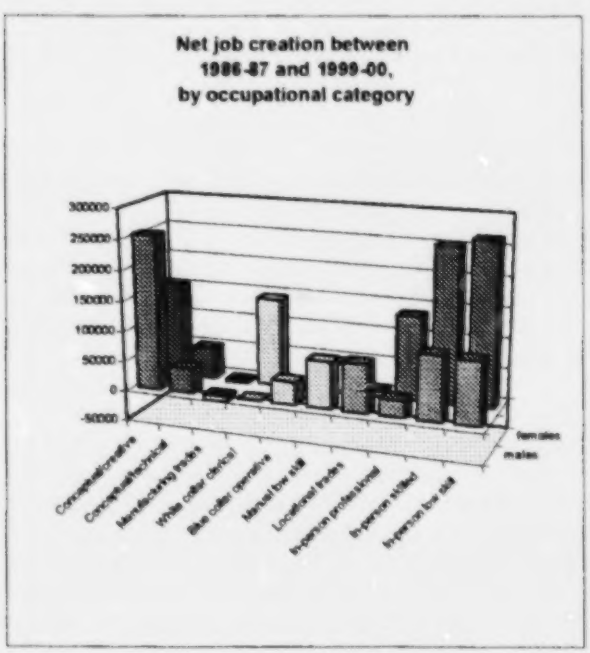


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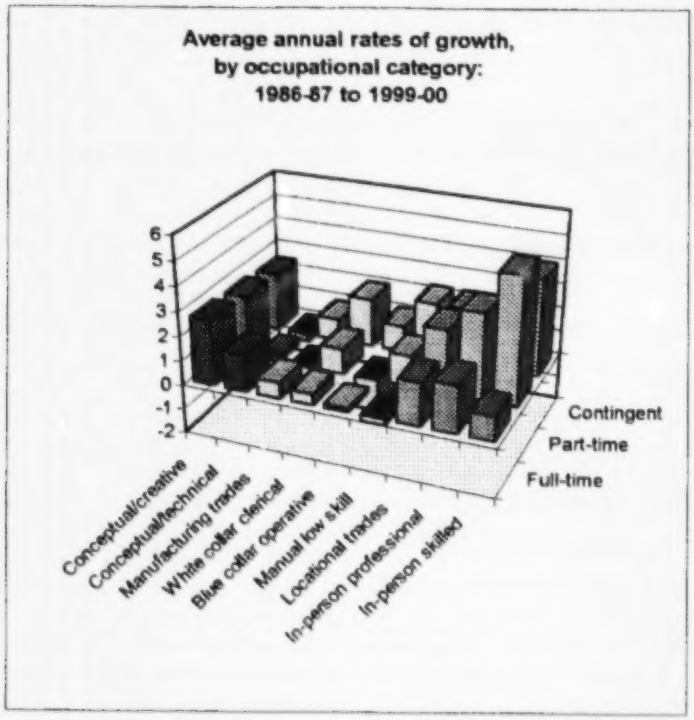
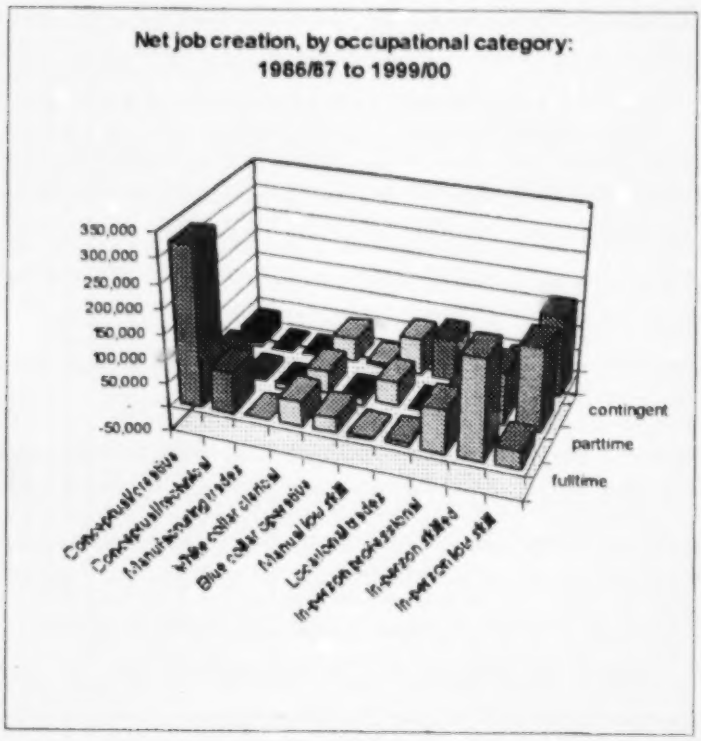
Figure 17





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The different experiences of males and females in terms of the occupational composition of their employment over the period is illustrated in Figure 16. What is clear that in terms of both average annual rates of growth and the number of net new jobs created over the period, females mostly did better than males. Indeed, the strongest rates of growth in any area of employment over the period was amongst females in the conceptual/creative occupational group. This was not sufficient, however, to translate into a greater number of net job creations amongst these occupations than were created for males. In terms of net new job creation for female workers, the professional, skilled, and low skill in-person occupational groups were by far the most important. Figure 16 again highlights how poorly the vulnerable occupational groups perform as employers for both men and women over the period. The only area in which any significant growth occurred was for female workers in the while collar clerical occupational category.

Comparisons between the relative and absolute growth over the period in employment, on a full-time, part-time and contingent basis in each of the ten occupational groupings, are provided in Figure 17. What is significant is that the standout performance was in full-time employment in the conceptual/creative group of occupations. The only serious rival for full-time employment growth was in the in-person skilled group of occupations. Strong growth, however, was also evident over the period in part-time and contingent employment in the insulated occupations and especially in the in-person low-skilled group of jobs. Again, what is clearly apparent is the poor performance in relative and, in some groups, absolute terms, amongst the range of vulnerable occupations.

5.4 Trends in employment over the period 1986-87 to 1999-2000

This section of the report summarises the trends over the period 1986-87 to 1999-00 in employment in the ten occupational groups identified. Figures contained in Appendix 1 of this report show occupational employment trends by gender, by hours worked per week and by age group.

Figure A1.1 shows the trend in total employment in each occupational category over the period. What is clear from this is the strong growth over most of the period in employment in the conceptual/creative occupations but also in in-person low skill occupations. It also shows the clear impact of the recession in Australia in the first few years of the nineteen nineties and the strong recovery in employment in most occupational areas after that. Two areas of employment, however, that in the manufacturing trades and the blue collar operative occupations, remained depressed even during the boom years of the later nineteen nineties.

Differences in the employment trends for males and females are evident in Figures A1.2 and A1.3. What is most striking about employment for males over this period is the dominance of employment and employment growth in the conceptual/creative occupations. Employment in these occupations started off a higher base at the beginning of the period and grew more strongly than any other occupational group. What is also striking in contrast is the sluggish growth in many areas of male employment particularly amongst the most vulnerable occupations. Figure A1.3 gives a completely different picture of employment trends for females in Australia over that period. Two occupational groups shared the lead in female employment over the whole of the period, but whereas at the beginning of the period, white collar clerical occupations were the major employer of females by the end of the period, in-person low skilled occupations employed more females. What is also evident from Figure A1.3 is the strong growth in employment in conceptual/creative occupations and in in-person professional and in-person skilled occupations. The only area of female employment that experienced a decline over the period was amongst blue collar operatives.

Figures A1.4 and A1.5 compare trends in employment on a full-time basis with that on a part-time and contingent basis. It is clear from these figures how much more of an impact economic cycles have on full-time employment compared with part-time employment. The recession of the early nineties is clearly evident in the former but barely discernable in the latter. Two occupational areas dominated full-time employment over the period. The clear leader and the one which rose most steeply, was the conceptual/creative group of occupations. The other area to show strong growth was the in-person skilled group of occupations. What is also readily apparent from Figure A1.4 is just how stagnant full-time employment in the vulnerable occupational groups was over most of the period. Most of the growth in part-time and contingent employment over the period was in in-person low skilled occupations although the manual low skill and white collar clerical groups also were significant areas of fractional employment.

The striking differences in the trends of employment for Australians at different stages of their working lives are evident in Tables A1.6 to A1.10. Figure A1.6 shows the dramatic changes in employment patterns for workers in their early training years (ages 15 to 19). It shows that employment in eight of the ten occupational groups declined over the period. It remained more or less the same level in manual low skilled occupations (save for the recession years of the early nineties) but grew enormously over the period in in-person low skilled occupations (again, except for the recession years). Comment has already been made on the likely causes of these

dramatic changes. Something of the same picture emerges from Figure A1.7 in the employment trends for workers in their later training years (ages 20 to 24). Again, almost all areas of employment either declined or stagnated except for the in-person low skill occupations. What is encouraging, for this group, however, was the increase in employment, albeit off a comparatively low base, in the conceptual/creative occupational group.

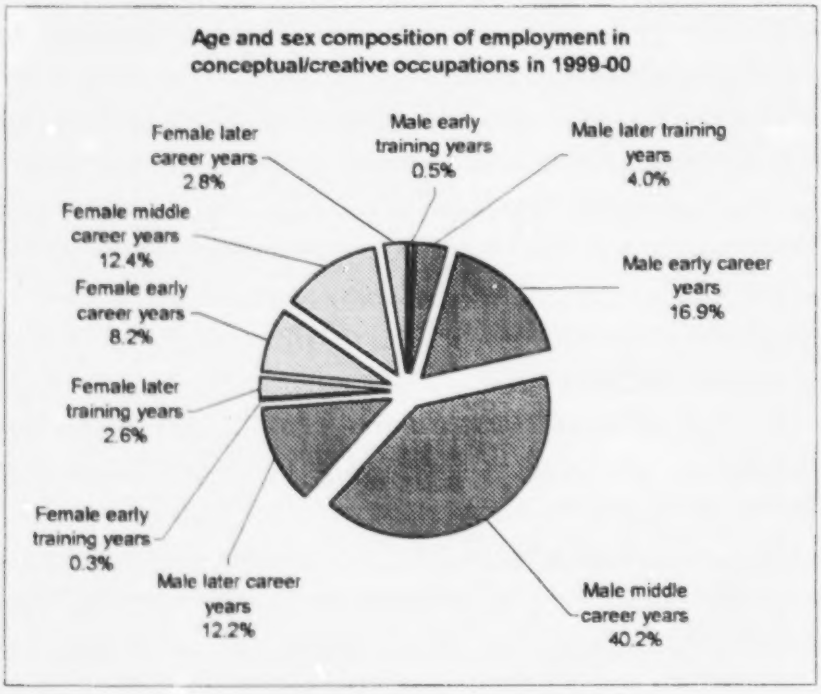
Figures A1 to A10 show the trends in employment for workers in their early career years (ages 25 to 34), middle career years (ages 35 to 54) and later career years (ages 55 and over). The most interesting aspect of these trends is the strong growth in, and the growing dominance of employment in the conceptual/creative occupations amongst these career age groups.

5.5 Employment in the conceptual/creative group of occupations

This section of the report provides a more detailed analysis of employment in the conceptual/creative group of occupations – that group of occupations that are most positively and opportunistically engaged in competitive global labour markets.

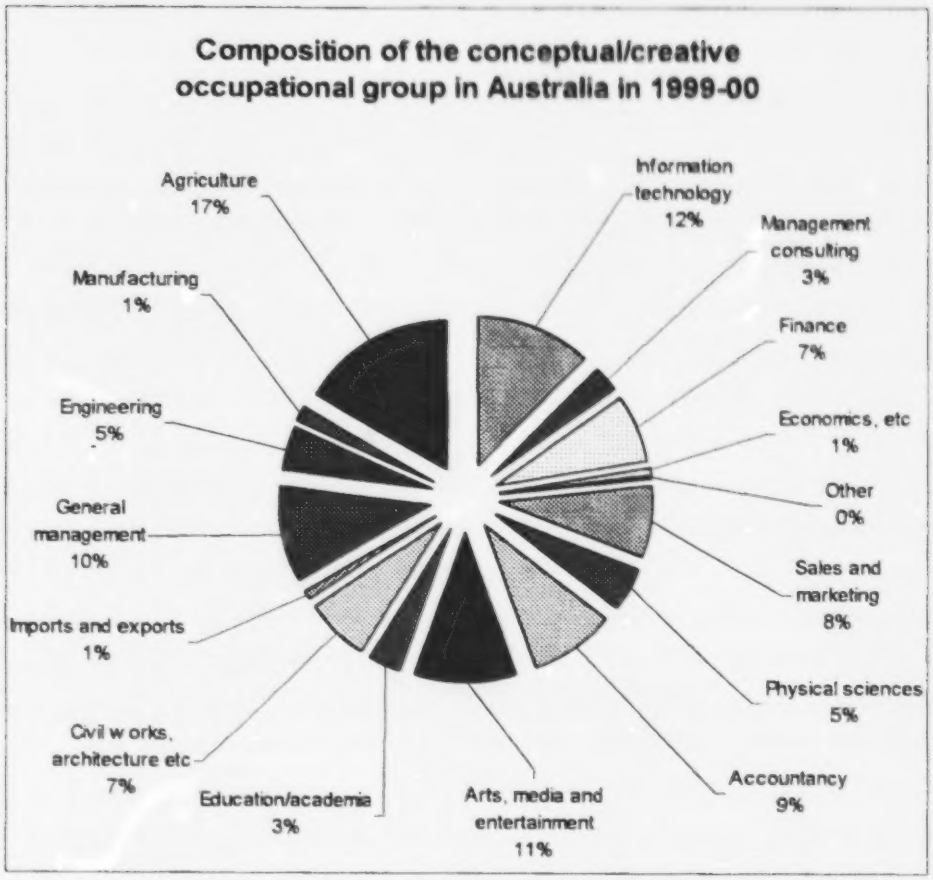
The evidence presented in the previous two sections reveal quite clearly that this has been an area of strongest growth of employment in Australia over the period since the mid nineteen eighties, that it is largely full-time in nature and that although it is dominated by males, especially males in their middle career years, female participation in these occupations is growing rapidly. Figure 18 highlights these patterns and trends. Figure 18 gives the age and sex composition of employment amongst the conceptual/creative occupations in 1999-00. The dominance of males in their middle career years is clearly apparent – there are more of them working in these occupations than there are females of all ages doing so. What is also apparent from this figure is just how small a contribution young males and females in their training years make in this vital area of employment.

Figure 18


Age and sex composition of employment in conceptual/creative occupations in 1999-00
Female later career years 2.8%
Male early training years 0.5%
Male later training years 4.0%
Female middle career years 12.4%
Male early career years 16.9%
Female early career years 8.2%
Female later training years 2.6%
Female early training years 0.3%
Male later career years 12.2%
Male middle career years 40.2%

What Figure 18 also shows of course, is that in all age groups beyond the early training years, female employment in the conceptual/creative occupations grew at a much faster rate than males. Employment of both males and females age 15 to 19 in these occupations fell over the period, again for reasons already canvassed. Whereas growth rates in employment of males in these occupations peaked in the middle career years, they peaked in the early career years for females.

Figure 19



Figures 19 to 21 provide a breakdown of the occupational composition of the conceptual/creative category of employment. The composition of the conceptual/creative occupational group in Australia in 1999-00 is given in Figure 19. It shows that the largest single occupational group is the agriculture group made up principally of farmers and farm managers. Other areas well represented, however, in this group of occupations that interact most positively and opportunistically in global labour markets are high level occupations in information technology, the arts, media and entertainment occupations, and general managerial occupations

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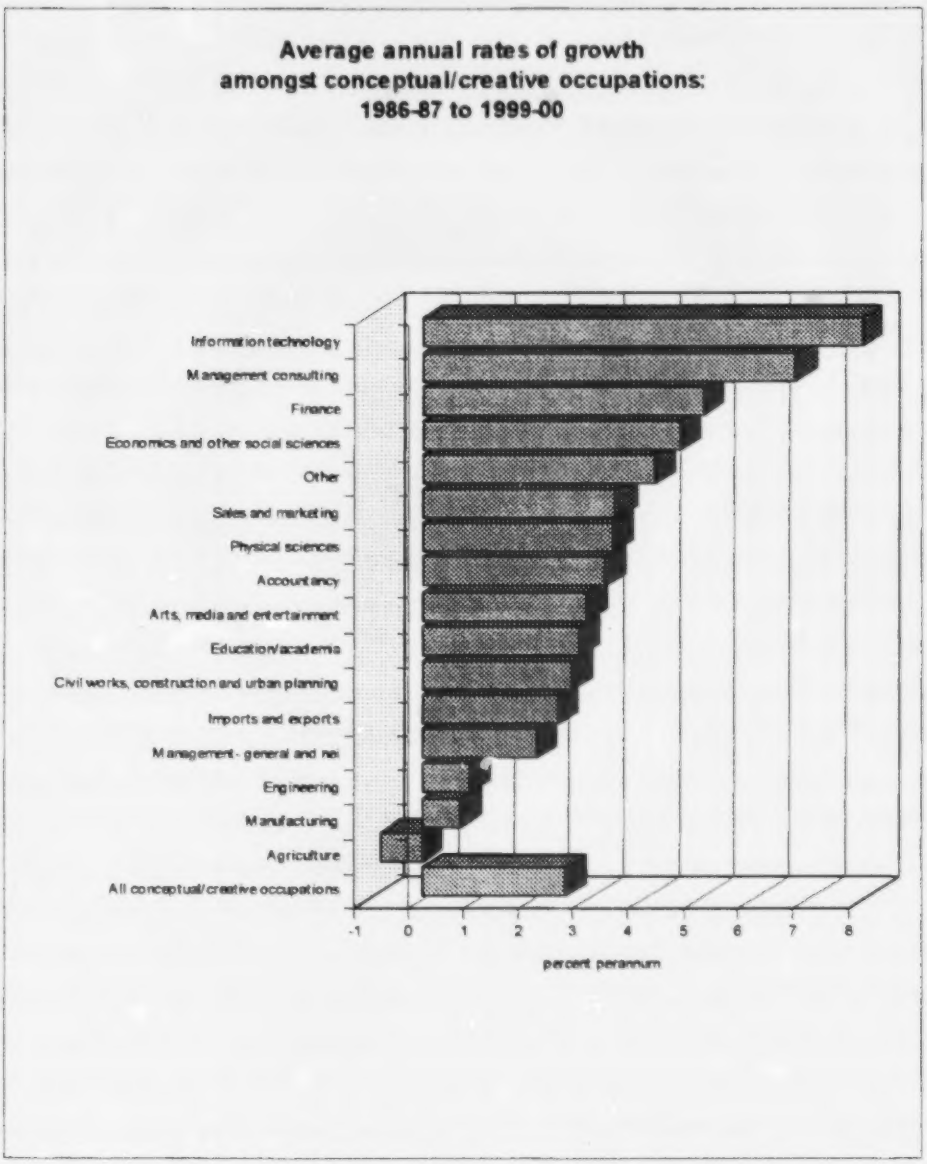
Figure 20



In such a dynamic environment as the emerging globalised knowledge-based economy, it is not surprising that employment in this group of occupations showed a considerable degree of volatility. Figure 20 ranks the occupations within this group by their average annual rates of growth over the period 1986-87 to 1999-00. Clearly the areas growing the fastest are the ones most directly linked into the global economy, that is, occupations in the information technology, management consulting and finance areas. The conceptual/creative occupations which have grown at the slowest rates, on the other hand, are those more associated with the old economy, that is occupations in the engineering, manufacturing and import/export category. Agriculture, our biggest old economy sector and still the largest employer of conceptual/creative workers, actually declined as an employer over this period.

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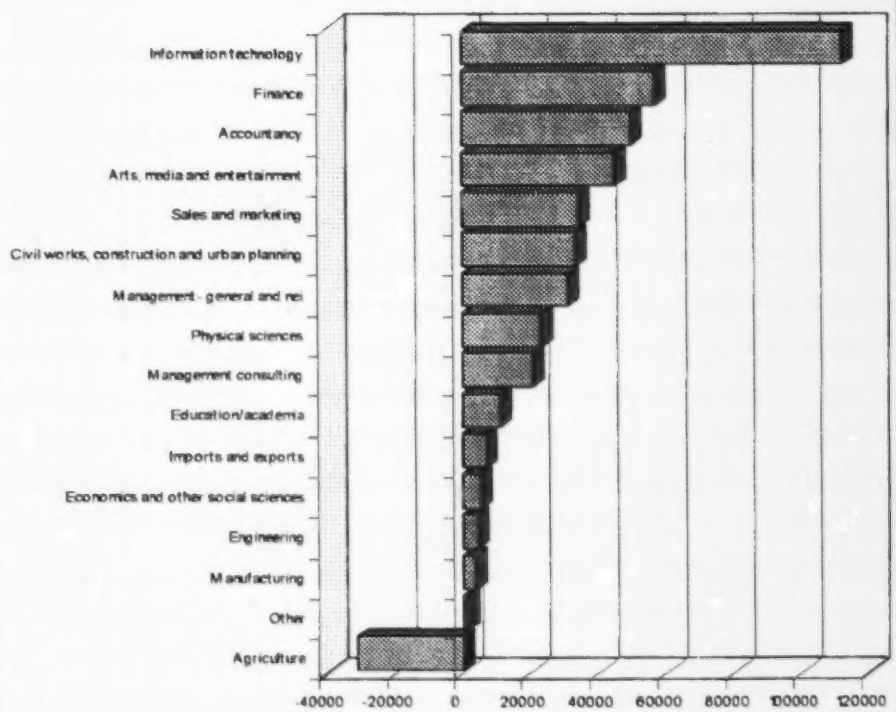
Figure 21 looks at the same range of conceptual/creative occupations, but ranks them in terms of the net new jobs created over the period 1986-87 to 1999-00. The order is not that much different to that shown in Figure 20. Information technology not only was the fastest growing area of conceptual/creative employment, it also created the greatest number of net new jobs. Finance and accountancy also expanded as employers of conceptual/creative workers, as did the arts, media and entertainment area. Again, the old economy areas surrounding engineering and manufacturing, had comparatively few net new job creations, and agriculture, of course, experienced net job losses.

Figure 21

Net job creation amongst conceptual/creative occupations, between 1986-7 and 1999-00



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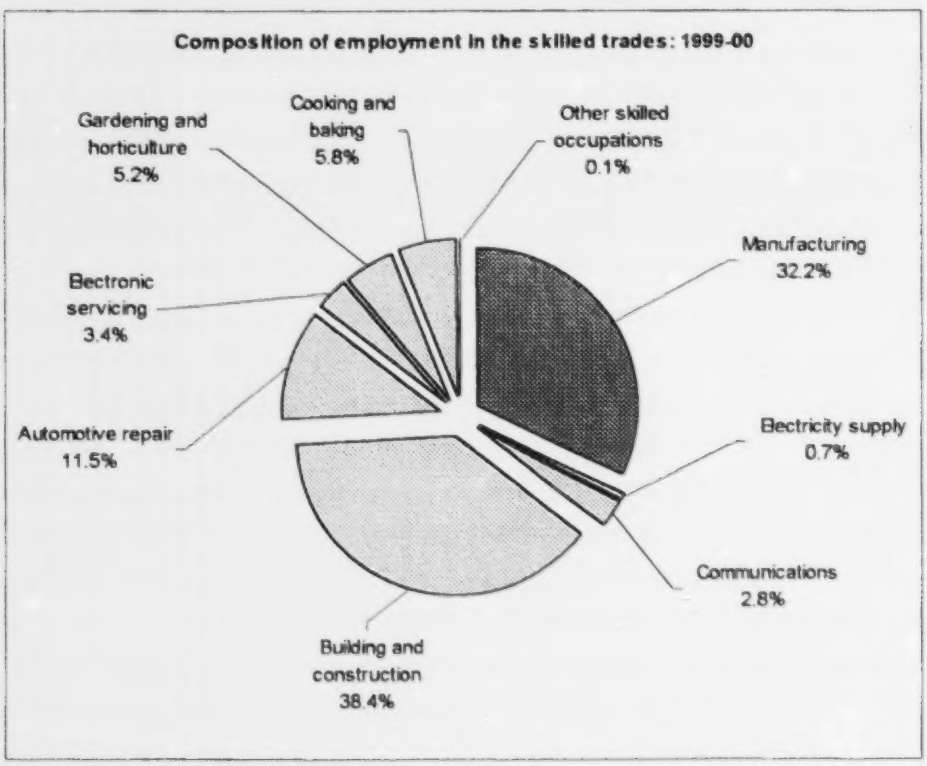
5.6 Employment in the manufacturing and locational trades

In this study the distinction has been drawn between manufacturing trades and locational trades. This has been done on the basis that the former are exposed to global competitive forces. In recent times the world has seen many manufacturing activities relocating away from the advanced industrial countries to countries in the developing world where labour costs and employment regulations are generally lower. Australia, as an advanced high-income country, has been just as vulnerable to these changes as have others in Europe and North America. The locational trades on the other hand, are ones by their very nature, that serve the needs of clients more directly and immediately in the environments in which they are located. Because clients and the suppliers of these services have to be in close proximity to one another, employment markets in this area are insulated from global competitive forces.

In this section of the report we compare the two areas of employment, and how they have fared over the period between the mid eighties and the present.

Figure 22 provides a breakdown of the locational trades and compares these with those in manufacturing. It shows that whilst the manufacturing trades constituted about 32 percent of employment in all trades in 1999-00, the largest locational group of trades – those related to building and construction – accounted for a greater percentage (38 percent).

Figure 22



Differences in employment changes over the period between the manufacturing and locational trades are a clear indication of how being either exposed to global competitive forces or being vulnerable to global labour market forces or being insulated from them affects the outcome. Figures 23 and 24 summarise the changes that occurred in employment in these two groups of occupations between 1986-87 and 1999-00.

Figure 23 shows that whereas manufacturing trades declined over the period, locational trades, on balance, increased, and that the latter outweighed the former. It also shows, however, that not all locational trades increased over the period. Big reductions were experienced in those specifically related to the electricity supply and distribution industries and to telephone installation and maintenance. The strongest rate of growth (apart from in the miniscule other skills category) were in electronic servicing, gardening and horticulture and food preparation.

Figure 23

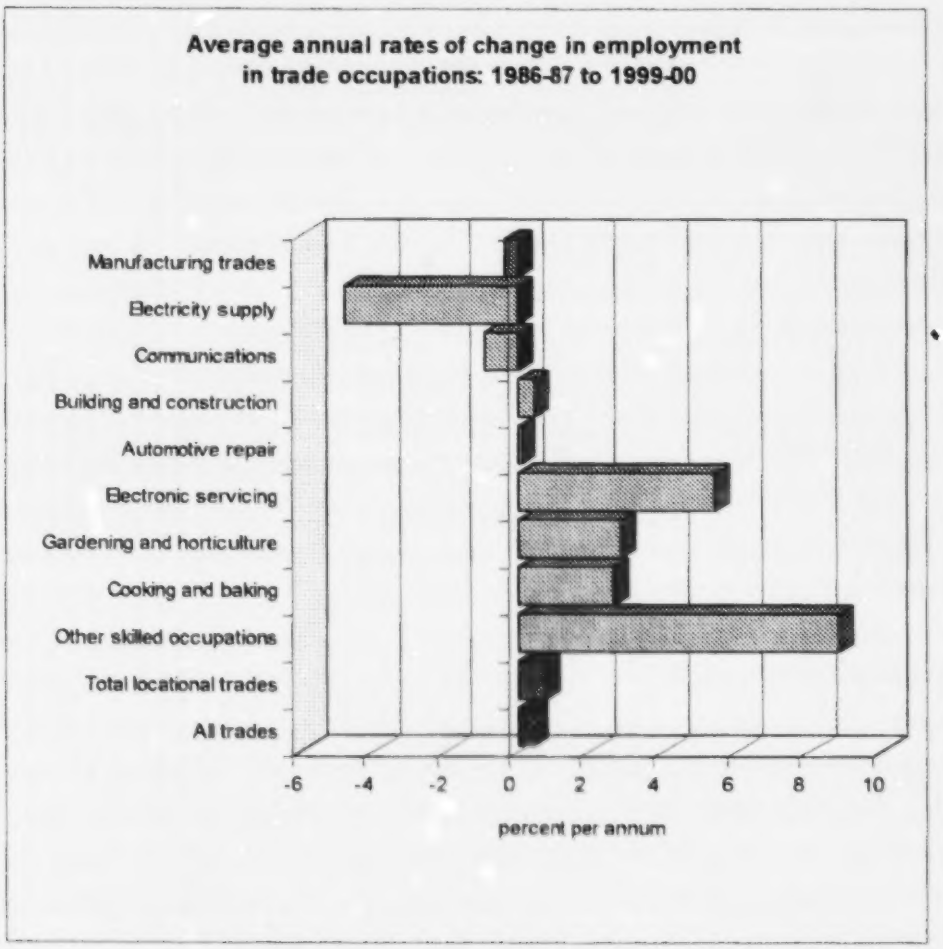


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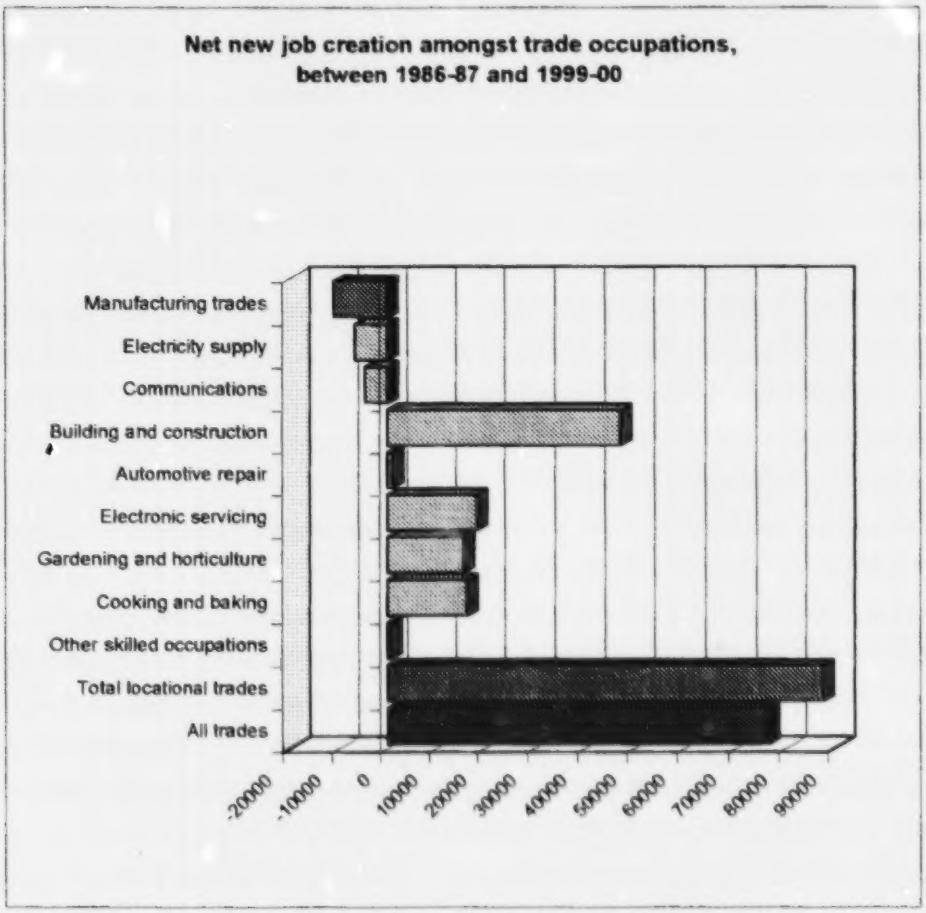
Figure 24 expresses the same pattern of changes over the period in terms of the number of net new jobs created between 1986-87 and 1999-00. It shows that job losses were experienced in the manufacturing trades, electricity supply and distribution and telephone installation and maintenance, but these falls were greatly outweighed by increases in the building and construction industry and in electronic servicing, gardening and horticulture and food preparation.

Figure 24



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6. Conclusions

When viewing employment patterns in Australia, and how they have changed over the last fifteen years or so, from the standpoint of what they auger for the future as the world economy becomes ever more globalised and knowledge-based, a number of alternatives present themselves.

One is that if Australia is to remain globally competitive and, indeed, if it is to avoid becoming globally irrelevant, more and more of its workers must be able, in one way or another, to participate positively and opportunistically in global labour markets. That is to say, they must be employed, or be employable in, those occupations that are essentially conceptual/creative in nature, and/or in those conceptual/technical occupations that either support or are allied to them. For Australians to gain and retain employment in these globally-related occupations, it is axiomatic that they will have to do so on *world best-practice* terms. This poses a tremendous challenge for the way in which we prepare young people for work and in the way in which we continue their training and professional development. The onus is very much, therefore, on Australia's education and training system. In this respect, the evidence presented in this report should be cause for concern for the VET sector. Whilst it no doubt is an important contributor to a number of specific occupations within this group, overall it is not playing nearly as significant a role as the higher education sector.

To be successfully employed in conceptual/creative occupations in many instances, perforce, requires high levels of specific skills and knowledge, but the overriding characteristics of these occupations are their requirements for flexibility, innovativeness, creativity, enterprise, adaptability and the willingness to take risks. It is vital, therefore, that these characteristics be incorporated into curriculum development and teaching practice in VET programs and, indeed, across the board in all levels of education and training – starting with pre-school and primary and going through to higher education. English is the *lingua franca* of global business, finance, communications, scientific research and, indeed, of most areas of the global knowledge-based economy, and so a very high premium is attached to verbal and written fluency in the language. Very high levels of IT literacy are also mandatory in many occupations that are positively and opportunistically exposed to global labour market forces, not just those directly related to IT and telecommunications. Again it is axiomatic that the IT systems and facilities they have at their disposal must be state-of-the art if Australians are to compete successfully on the global stage, and that so too are their education, training and professional development. Whilst the country invests heavily in IT and telecommunications infrastructure, it is in respect to education, training and professional development that we are in danger of not just slipping behind our competitors, but into irrelevance as well.

An alternative focus for the future is upon trying to maximise job creation, to ensure as much as possible all those seeking employment can find it. In this context, preparing people for entry into the conceptual/creative and conceptual/technical group of occupations, will not in itself be sufficient. Currently they only employ about one in five Australians in the workforce, and realistically, they are never likely to provide jobs for everybody. What this study shows is that occupations that are more insulated from the globally competitive labour markets are more capable of creating additional employment opportunities. Most of these are of an in-person nature. Employers place great store on personal characteristics, how well employees present to customers, clients, suppliers, etc, not just on specific job-related competencies The implications of these trends for the education and training sector is that it needs to be able to build up the interpersonal communication skills of those entering the

labour force and those wishing to remain in it. Given also that most of the new insulated jobs that are being created are on a part-time and contingent basis, education and training institutions need to give serious consideration to preparing young people for different interconnections between work and leisure.

What appears from this study to be the least desirable alternative is for the education and training sector to continue to prepare young people for occupations which are increasingly vulnerable to the forces of global labour market competition. The study shows that employment in these areas is either stagnating or in long-term decline, and whilst there will continue to be a need for these occupations and to meet the replacement demand as workers depart from them, neither Australia's globally competitive position nor its capacity to create new jobs is served well by these occupations. Given that many of these occupations have traditionally been a major focus of the VET sector, the trend for the sector to broaden its focus and re-direct its energies should be accelerated.

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Appendix 1
Trends in employment by occupational group: 1986-87 to 1999-00

Figure A1.1

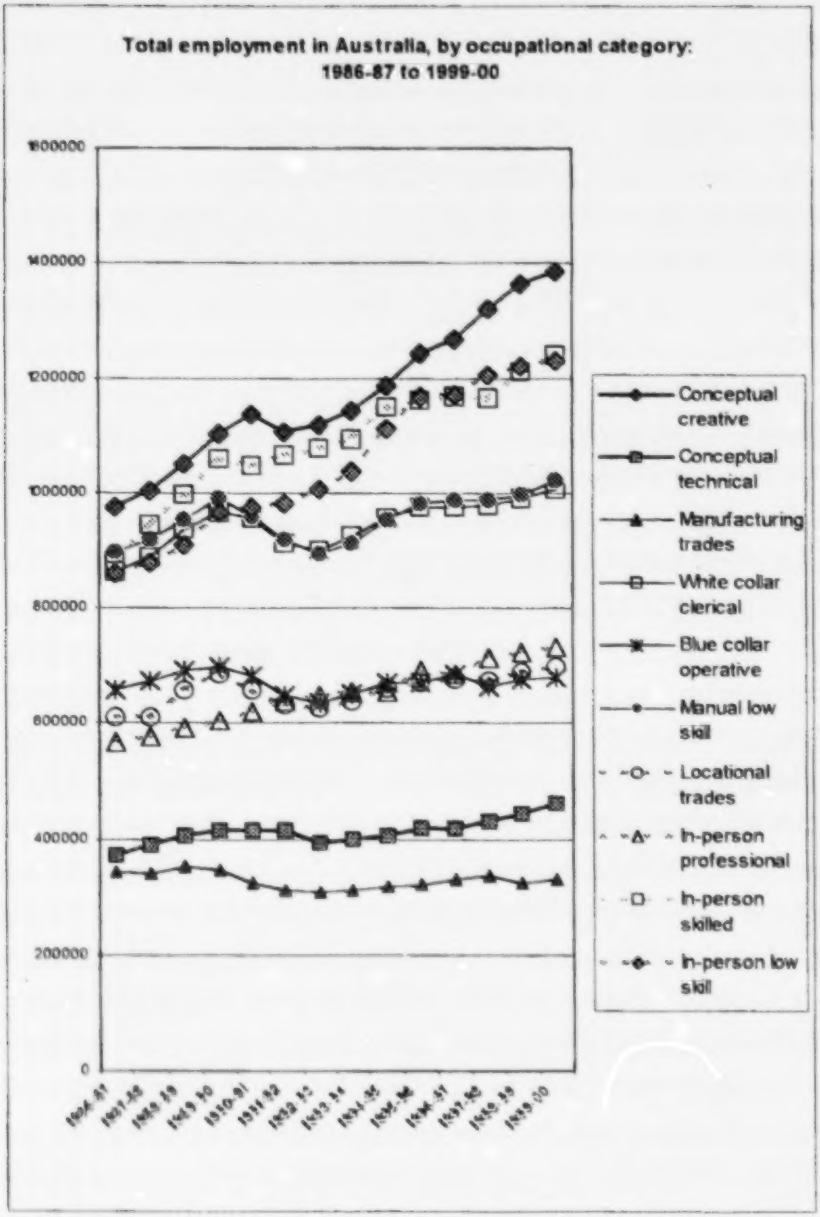

Figure A1.2

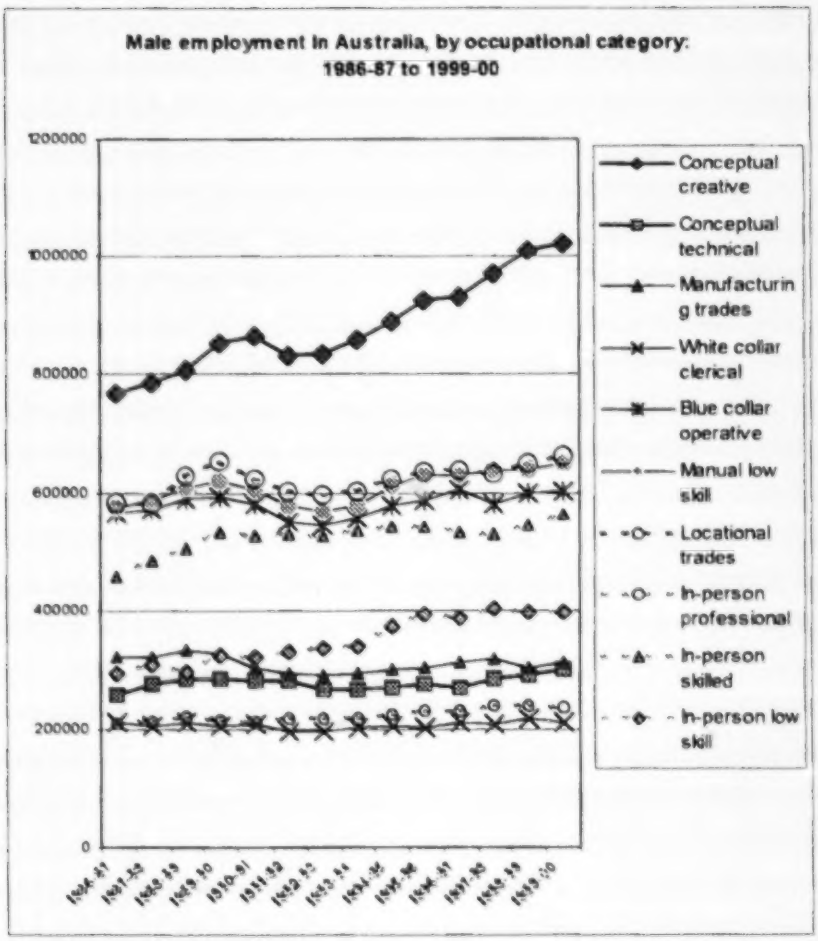

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Figure A1.3

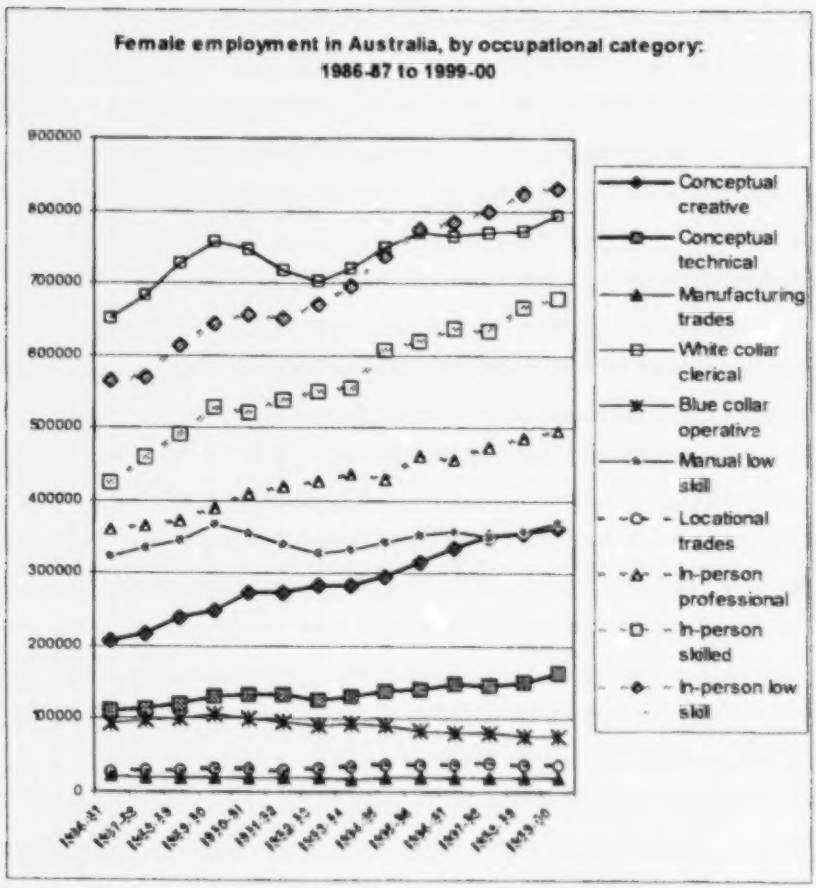
Female employment in Australia, by occupational category:
1986-87 to 1999-00
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.4

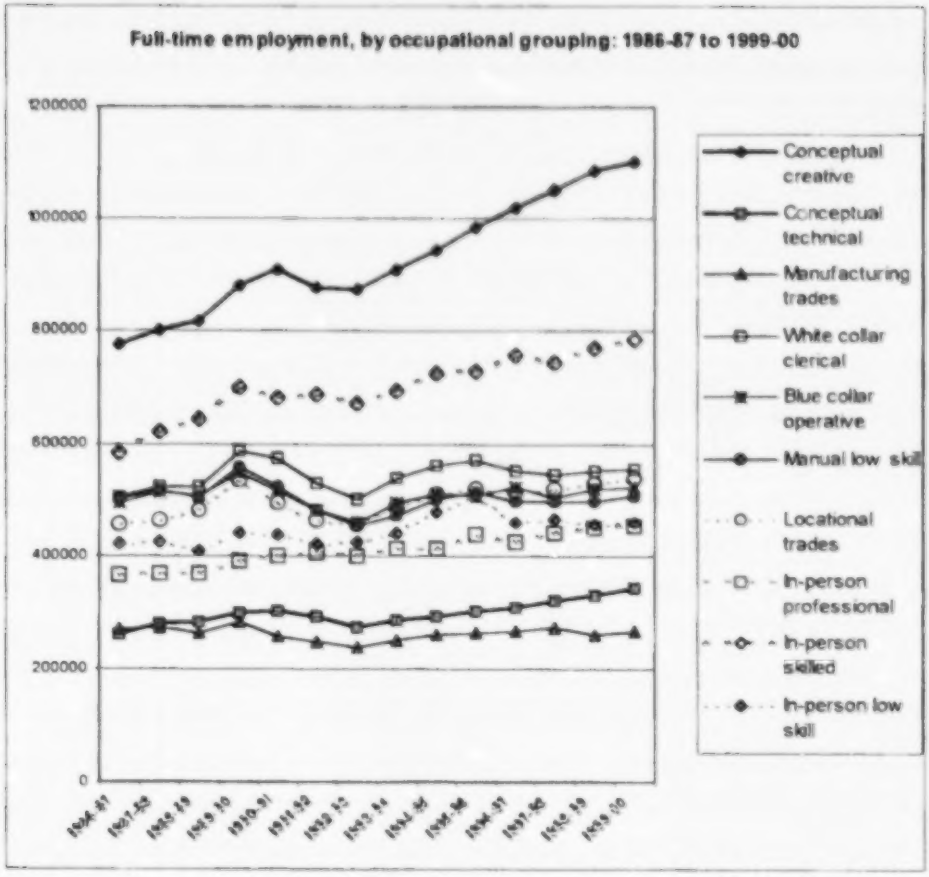
Full-time employment, by occupational grouping: 1986-87 to 1999-00
1200000
1000000
800000
600000
400000
200000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.5

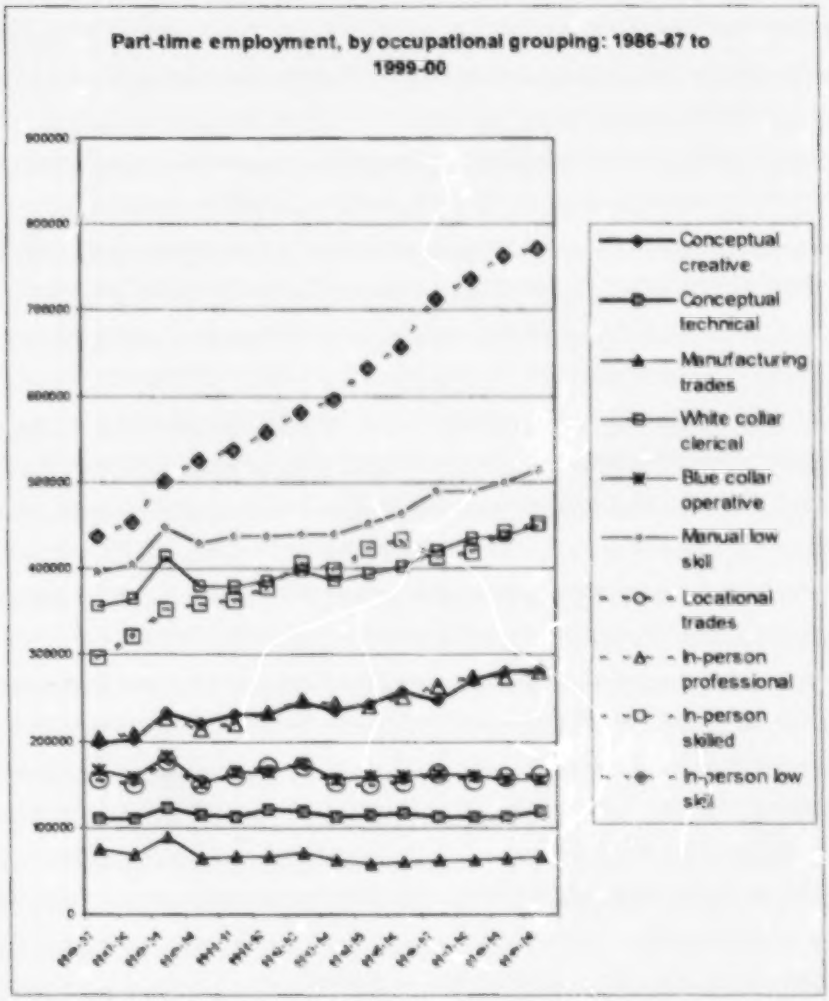
Part-time employment, by occupational grouping: 1986-87 to 1999-00
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.6

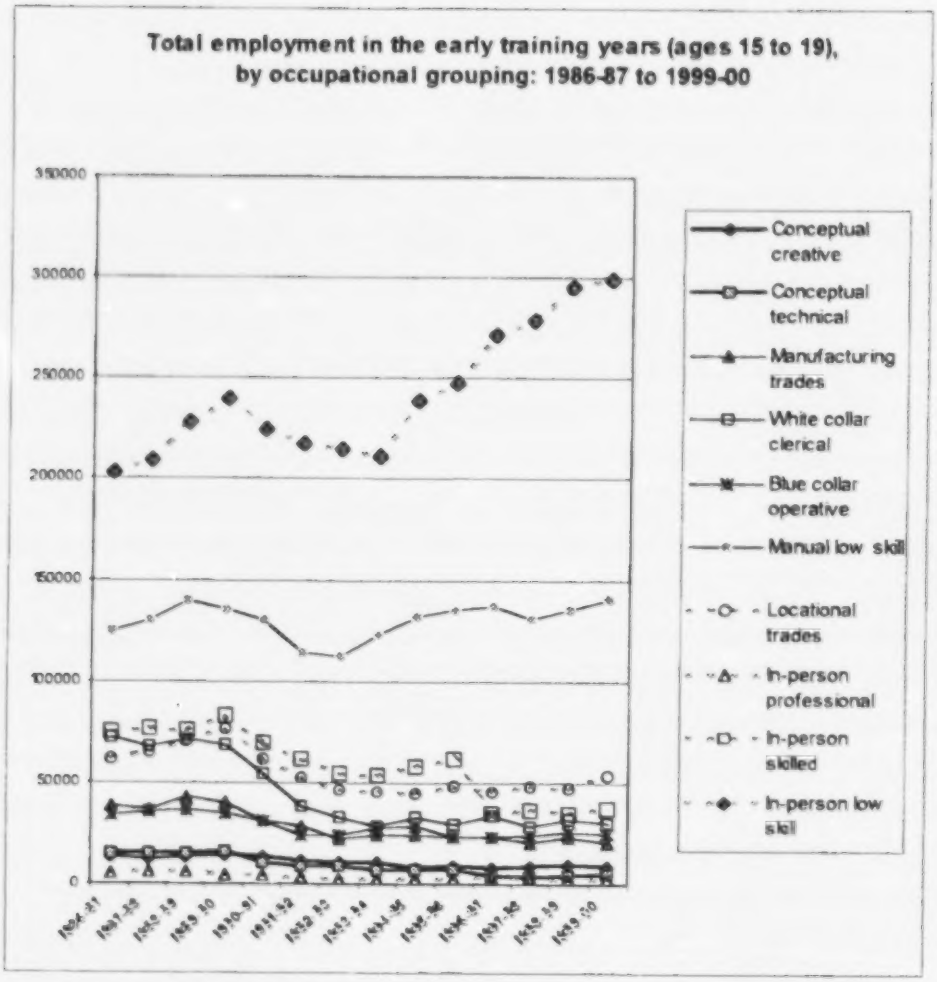

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Figure A1.7

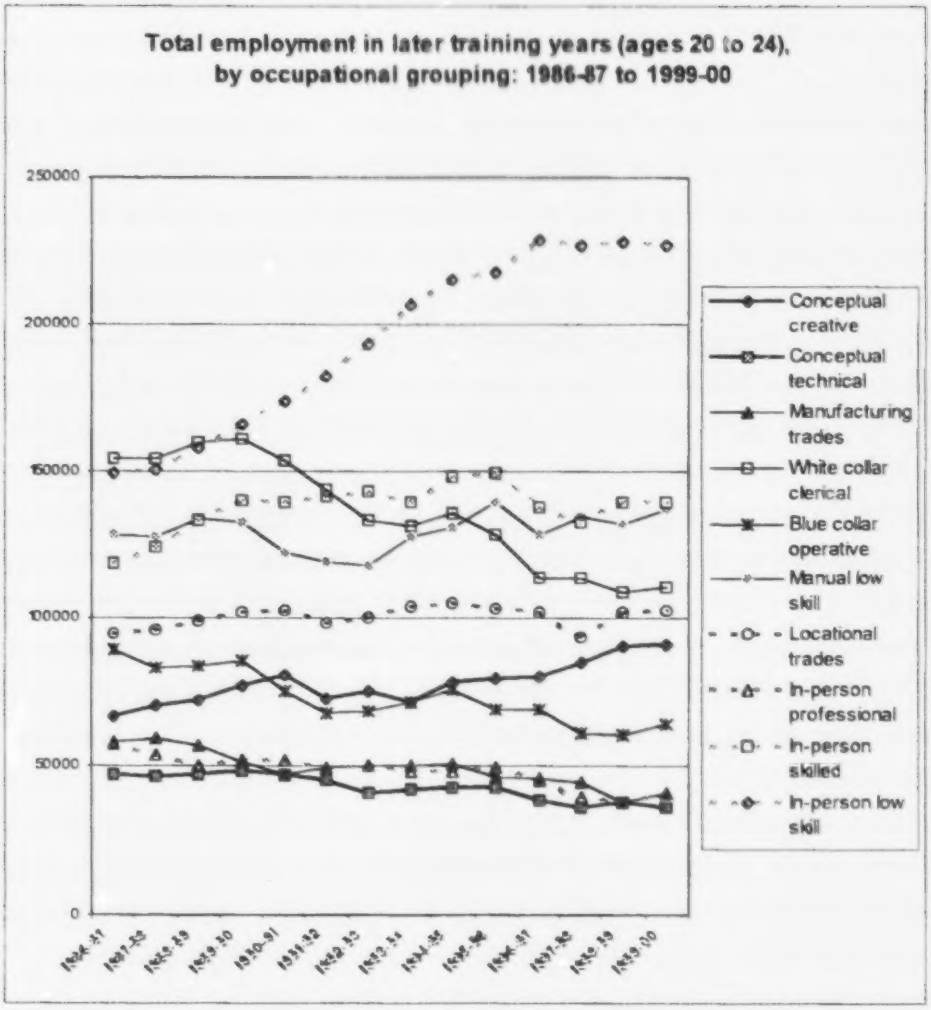

Total employment in later training years (ages 20 to 24), by occupational grouping: 1986-87 to 1999-00
250000
200000
150000
100000
50000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.8

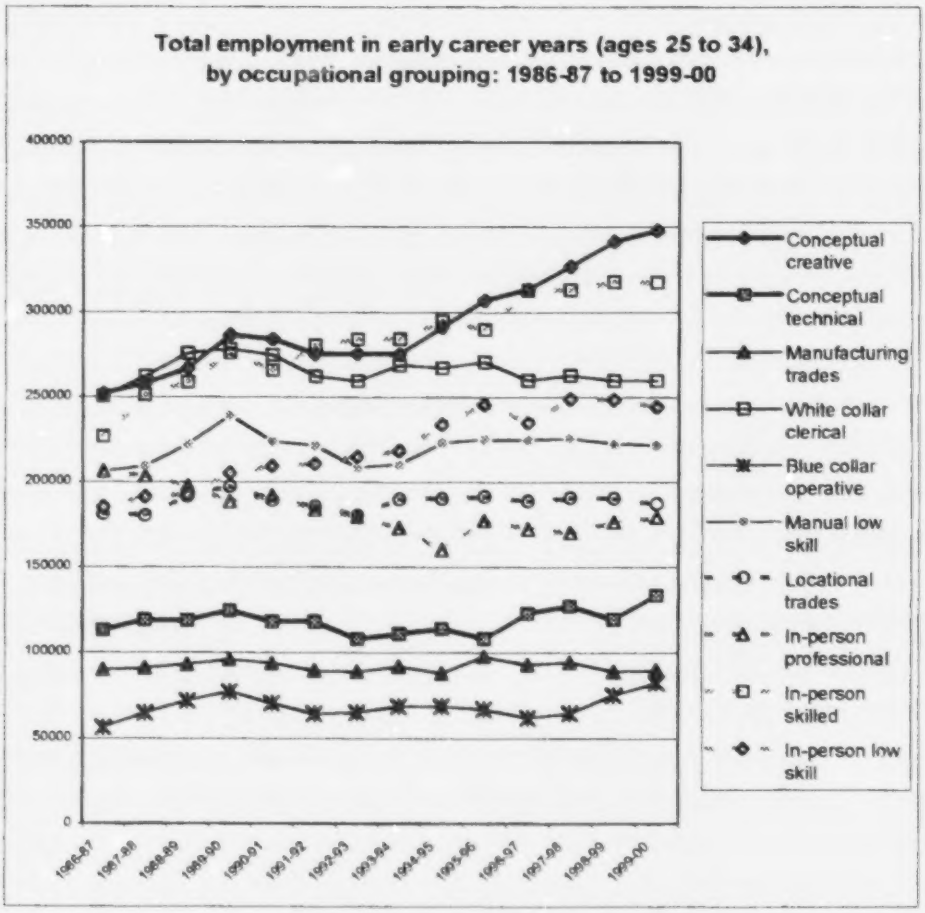

Total employment in early career years (ages 25 to 34), by occupational grouping: 1986-87 to 1999-00
400000
350000
300000
250000
200000
150000
100000
50000
0
1986-87
1987-88
1988-89
1989-90
1990-91
1991-92
1992-93
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.9

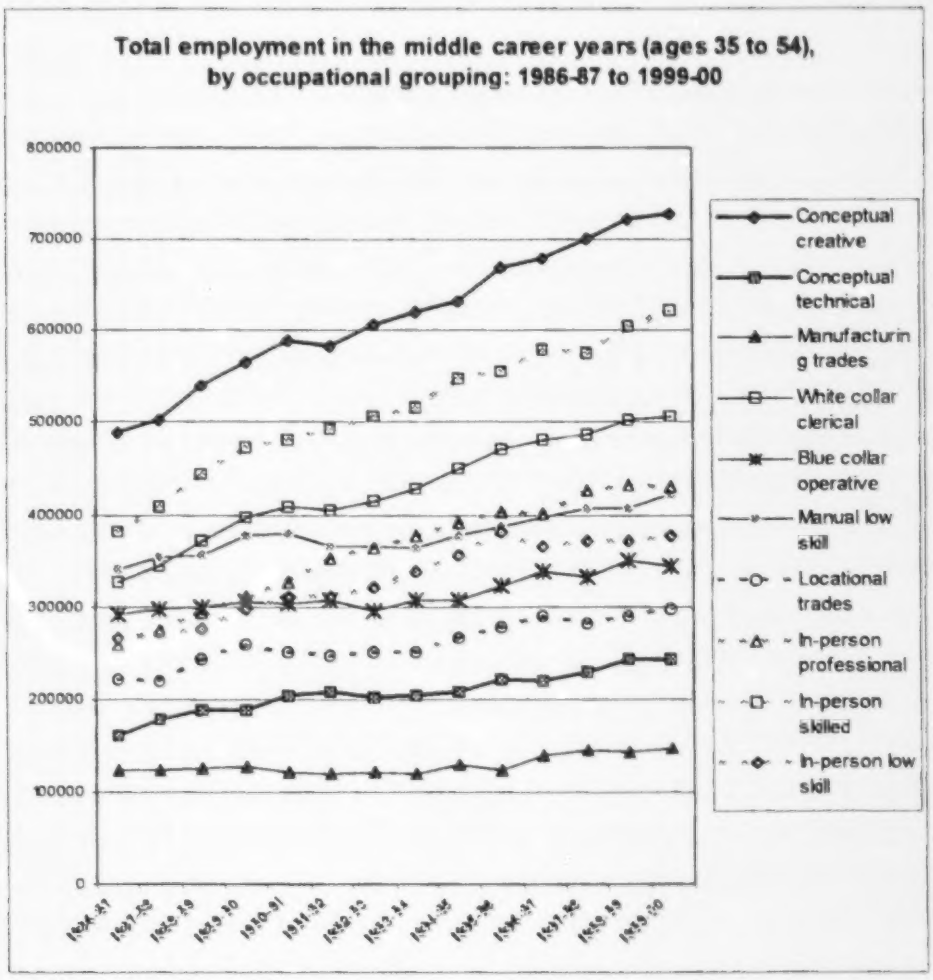
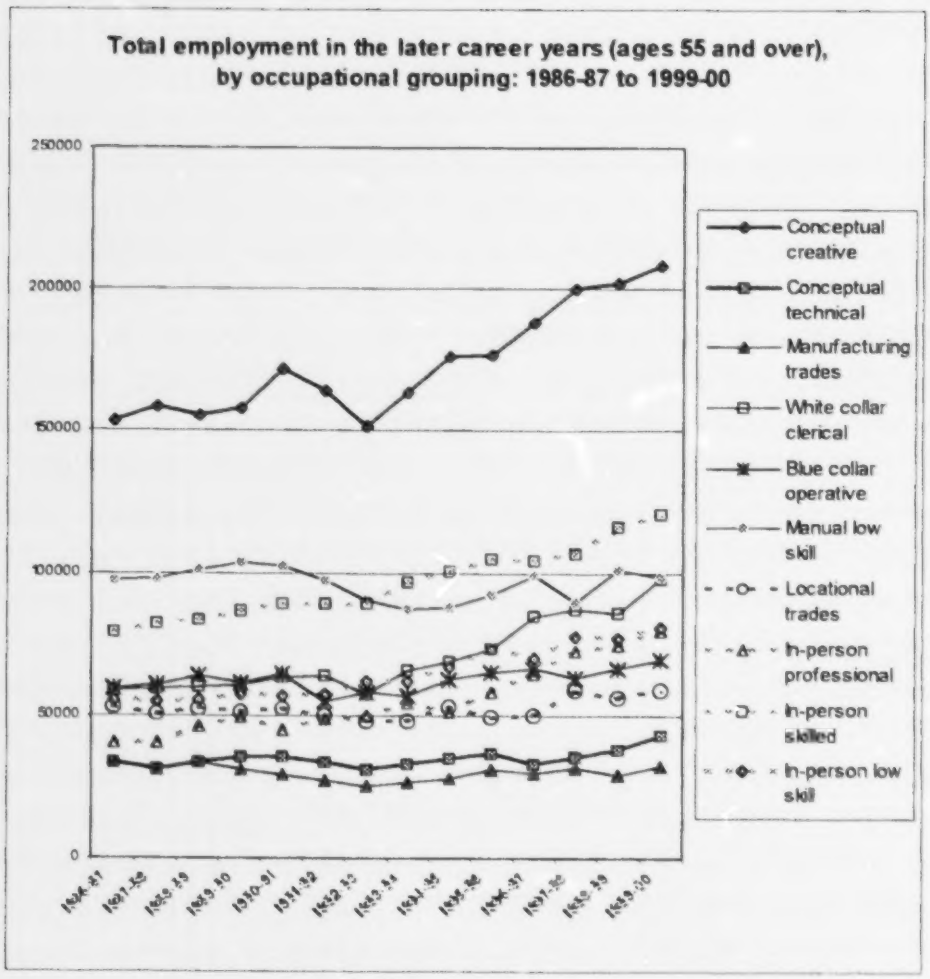

Total employment in the middle career years (ages 35 to 54), by occupational grouping: 1986-87 to 1999-00
800000
700000
600000
500000
400000
300000
200000
100000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Figure A1.10


Total employment in the later career years (ages 55 and over), by occupational grouping: 1986-87 to 1999-00
250000
200000
150000
100000
50000
0
Conceptual creative
Conceptual technical
Manufacturing trades
White collar clerical
Blue collar operative
Manual low skill
Locational trades
In-person professional
In-person skilled
In-person low skill

Appendix 2

CLASSIFICATION OF THE 340 ASCO (2) OCCUPATIONS

POSITIVE/OPPORTUNISTIC OCCUPATIONS	
1 CONCEPTUAL/CREATIVE	
	Agriculture
1311	Mixed Crop and Livestock Farmers
1312	Livestock Farmers
1313	Crop Farmers
1314	Aquaculture Farmers
	Manufacturing
1193	Manufacturers
	Imports and Exports
1192	Importers, Exporters and Wholesalers
	Management
1112	General Managers
1213	Human Resource Managers
1222	Production Managers (Manufacturing and Mining)
1223	Supply and Distribution Managers
1291	Policy and Planning Managers
1299	Specialist Managers n.e.c.
	Management Consulting
2294	Management Consultants
	Accountancy
1212	Company Secretaries
2211	Accountants
2212	Auditors
2213	Corporate Treasurers
	Finance
1211	Finance Managers
3212	Financial Dealers and Brokers
3213	Financial Investment Advisors
	Sales and Marketing
1231	Sales and Marketing Managers
2221	Marketing and Advertising Specialists
	Information Technology
1224	Information Technology Managers
2231	Software Designers and Other Computing Professionals
2299	Other Business and Information Professionals n.e.c.

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	Engineering
1221	Engineering Managers
2125	Electrical and Electronic Engineers
2126	Mechanical and Production Engineers
2127	Mining, Petroleum and Materials Engineers
2129	Other Engineers n.e.c.
	Civil Works, Construction and Urban Planning
1191	Project Builders and Project Construction Managers
2121	Architects
2124	Civil Engineers
2523	Urban and Regional Planners
	Physical Sciences
2111	Chemists
2112	Geologists and Geophysicists
2113	Life Scientists
2114	Environmental and Agricultural Scientists
2115	Medical Scientists
2119	Physicists and other Natural Scientists
2293	Mathematicians and Statisticians
	Social Sciences
2522	Economists
2529	Historians and Other Social Scientists n.e.c.
	Education
1293	School Principals, Faculty Heads and Other Education Managers
2421	University Lecturers and Tutors
	Arts, Media and Entertainment
1296	Media Producers and Artistic Directors
2531	Visual Arts and Crafts Professionals
2532	Photographers
2533	Designers and Illustrators
2534	Journalists and Related Professionals
2535	Authors and Book and Script Editors
2536	Film, Television, Radio and Stage Directors
2537	Musicians and Related Professionals
2538	Actors, Dancers and Related Professionals
2539	Radio and Television Presenters
3322	Chefs
	Other
1111	Legislators and Government Appointed Officials

2 CONCEPTUAL/TECHNICAL	
1294	Police, Fire and Defence Force Commissioned Officers
2122	Quantity Surveyors
2123	Cartographers and Surveyors
2128	Engineering Technologists
2222	Technical Sales Representatives
2291	Personnel and Industrial Relations Officers
2292	Librarians
2295	Valuers and Land Economists
2322	Nurse Educators and Researchers
2391	Radiographers, Radiation Therapists etc.
2399	Audiologists, Orthoptists, Orthortists and other Health Professionals n.e.c.
2493	Education Officers
2541	Air Transport Professionals
2542	Sea Transport Professionals
2543	Environmental and Occupational Health and Safety Officers
2549	Other Professionals n.e.c.
3111	Medical Technical Officers
3112	Science Technical Officers
3121	Building and Architectural Engineering Associates
3122	Civil Engineering Associates and Technicians
3123	Electrical Engineering Associates and Technicians
3124	Electronic Engineering Associates and Technicians
3125	Mechanical Engineering Associates and Technicians
3129	Other Engineering Associates and Technicians n.e.c.
3292	Project or Program Administrators
3294	Computing Support Technicians
3393	Transport Company Managers
3492	Dental Therapists, Hygienists and Technicians
3991	Primary Products Inspectors
3992	Safety Inspectors
3997	Library Technicians
3999	Other Associate Professionals n.e.c.
4613	Wool, Hide and Skin Classers
4992	Performing Arts Support Workers
5912	Credit and Loans Officers
5994	Insurance Risk Surveyors, Investigators and Loss Adjustors
6194	Other Inspectors, Examiners and Assessors n.e.c.

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VULNERABLE OCCUPATIONS	
3 MANUFACTURING TRADES	
4111	General Mechanical Engineering Tradespersons and Supervisors
4112	Metals, Textiles, Clothing and Footwear Tradespersons and Supervisors
4113	Toolmakers and Supervisors
4114	Aircraft Maintenance Engineers and Supervisors
4115	Precision Metal Tradespersons and Supervisors
4121	General Fabrication Engineering Tradespersons and Supervisors
4122	Structural Steel and Welding Tradespersons and Supervisors
4123	Blacksmiths, Forging Tradespersons and Supervisors
4124	Sheetmetal Tradespersons and Supervisors
4125	Metal Casting Tradespersons and Supervisors
4126	Metal Finishing Tradespersons and Supervisors
4214	Vehicle Painters and Supervisors
4215	Vehicle Body Makers and Supervisors
4216	Vehicle Trimmers and Supervisors
4314	Electronic Instrument Tradespersons and Supervisors
4511	Meat Tradespersons and Supervisors
4519	Millers, Butter and Cheese Makers and Confectioners
4911	Graphic Pre-Press Tradespersons
4922	Cabinet Makers and Supervisors
4941	General Clothing Tradespersons
4942	Upholsterers and Bedding Tradespersons
4943	Shoemakers
4944	Leather and Canvas Goods Makers and Sail Makers
4981	Shipwrights, Boatbuilders and Repairers
4982	Flat Glass Tradespersons and Glass Blowers
4983	Jewellers, Gem Cutters and Polishers
4999	Other Tradespersons and Related Workers n.e.c.
4 WHITE-COLLAR CLERICAL	
3291	Office Managers
5111	Secretaries and Personal Assistants
5911	Bookkeepers
5991	Clerks of Court, Law Clerks and Trust Officers
5992	Court or Hansard Reporters
5995	Desktop Publishing Operators
6111	General Clerks
6121	Typists, Word Processing and Data Entry Operators
6141	Accounts, Credit and Cost Clerks and Supervisors
6142	Payroll Clerks

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6144	Insurance Clerks and Supervisors
6145	Money Market and Statistical Clerks and Supervisors
6151	Production Recording Clerks
6152	Transport and Despatching Clerks and Supervisors
6153	Stock and Purchasing Clerks and Supervisors
6193	Personnel Records and Employment Office Clerks
6199	Other Intermediate Clerical Workers n.e.c.
8111	Registry and Filing Clerks
8112	Mail Clerks and Postal Sorting Officers
8116	Office Trainees
5	BLUE-COLLAR OPERATIVE
4611	Farm Overseers
4612	Shearers
4614	Horse and Other Animal Trainers
4912	Printing Machinists
4913	Binders and Finishers
4914	Screen Printers
4921	Wood Machinists and Turners
4929	Other Wood Tradespersons n.e.c.
4985	Fire Fighters
4986	Drillers and Supervisors
4987	Chemical, Petroleum and Gas Plant Operators and Supervisors
4988	Power Generation Plant Operators and Supervisors
4991	Defence Force Members n.e.c.
7111	Construction Plant Operators
7112	Fork Lift Drivers
7119	Mobile Plant Operators
7121	Engine or Boiler Operators
7122	Crane, Hoist and Lift Operators
7123	Engineering Production Systems Workers and Supervisors
7124	Pulp and Paper Mill Operators
7129	Other Intermediate Stationary Plant Operators and Supervisors
7211	Sewing Machinists and Supervisors
7212	Textile and Footwear Production Machine Operators and Supervisors
7291	Plastics Production Machine Operators and Supervisors
7292	Rubber Production Machine Operators and Supervisors
7293	Chemical Production Machine Operators and Supervisors
7294	Wood Processing Machine Operators and Supervisors
7295	Paper Products Machine Operators and Supervisors
7296	Glass Production Machine Operators and Supervisors
7297	Clay, Stone and Concrete Processing Machine Operators and Supervisors
7298	Photographic Developers and Printers

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7299	Other Intermediate Machine Operators and Supervisors n.e.c.
7311	Heavy Truck Drivers and Furniture Removalists
7314	Delivery Drivers
7315	Train Drivers and Assistants
7911	Miners
7912	Blasting Workers
7913	Scaffolders, Steel Fixers, Structural Steel Erectors and Riggers
7914	Building Insulation and Home Improvements Installers
7991	Motor Vehicle Parts and Accessories Fitters
7992	Product Examiners, Graders and Testers
9211	Engineering Process Workers
6	**MANUAL LOW-SKILL**
7993	Store Persons and Supervisors
7994	Seafarers and Fishing Hands
7995	Forestry and Logging Workers and Supervisors
7996	Printing Table Hands and Printers' Assistants
8119	Other Elementary Clerks n.e.c.
8314	Caretakers
8315	Laundry Workers
9111	Cleaners
9212	Production Assemblers
9213	Food Process Workers
9214	Other Food Factory Hands n.e.c.
9215	Wood and Wood Products Factory Hands
9219	Other Process Workers n.e.c.
9221	Hand Packers
9222	Packagers and Container Fillers
9911	Mining Support Workers and Drillers' Assistants
9912	Earthmoving Labourers
9913	Paving and Surfacing Labourers
9914	Survey Hands
9915	Railway Labourers
9916	Construction and Plumbers' Assistants
9917	Concretors
9918	Electrical and Telecommunications Trades Assistants
9919	Laggers, Crane Chasers and Fence Erectors
9921	Farm Hands
9922	Horticultural Nursery Assistants and Garden Labourers
9929	Other Agricultural and Horticultural Labourers n.e.c.
9931	Kitchen Hands
9933	Other Food Trades Assistants n.e.c.
9991	Garbage Collectors

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9992	Other Transport Workers n.e.c.
9993	Handypersons
9999	Other Labourers and Related Workers n.e.c.
INSULATED OCCUPATIONS	
7 LOCATIONAL TRADES	
	Building and construction
4311	Electricians and Supervisors
4312	Refrigeration and Airconditioning Mechanics and Supervisors
4411	Carpentry and Joinery Tradespersons and Supervisors
4412	Fibrous Plasterers and Supervisors
4413	Roof Slaters and Tilers and Supervisors
4414	Brick Layers and Supervisors
4415	Solid Plasterers and Supervisors
4416	Wall and Floor Tilers and Stonemasons and Supervisors
4421	Painters and Decorators and Supervisors
4422	Signwriters and Supervisors
4423	Floor Finishers and Supervisors
4431	Plumbers and Supervisors
	Automotive repair
4211	Motor Mechanics and Supervisors
4212	Automotive Electricians and Supervisors
4213	Panel Beaters and Supervisors
	Electronic servicing
4315	Electronic and Office Equipment Tradespersons and Supervisors
	Communications
4316	Communications Tradespersons and Supervisors
	Electricity Supply
4313	Electrical Distribution Tradespersons and Supervisors
	Horticulture
4622	Greenkeepers
4623	Gardeners and Tree Surgeons
	Bakers and cooks
4512	Bakers and Pastrycooks and Supervisors
4513	Cooks
	Other
3994	Senior Non Commissioned Defence Force Officers
3995	Senior Fire Fighters
8 IN-PERSON PROFESSIONALS	
1292	Medical Administrators and Directors of Nursing
2311	General Medical Practitioners
2312	Specialist Medical Practitioners

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2321	Nurse Managers
2323	Registered Nurses
2324	Registered Midwives
2325	Registered Mental Health Nurses
2326	Registered Developmental Disability Nurses
2381	Dentists and Dental Specialists
2382	Pharmacists
2383	Occupational Therapists
2384	Optometrists
2385	Phyisotherapists
2386	Speech Pathologists
2387	Chiropractors and Osteopaths
2388	Podiatrists
2392	Veterinarians
2393	Dietitians
2394	Natural Therapists
2411	Preschool Teachers
2412	Primary School Teachers
2413	Secondary School Teachers
2414	Special Education Teachers
2422	Vocational Education Teachers
2491	Private Art, Music, Dance and Drama Teachers
2492	English as a Second Language Teachers
2511	Social Workers
2512	Welfare and Community Workers
2513	Counsellors
2514	Psychologists
2515	Ministers of Religion
2521	Lawyers
9	**IN-PERSON SKILLED**
1295	Child Care Co-ordinators
3211	Branch Accountants and Branch Financial Institution Managers
3293	Real Estate Agency Managers and Salespersons
3311	Shop Managers
3321	Restaurant and Catering Managers
3323	Hotel or Motel Managers
3324	Club Managers
3325	Caravan Park and Camping Ground Managers
3329	Other Hospitality and Accommodation Managers
3391	Sports and Recreation Managers
3392	Customer Service Managers
3399	Other Sales and Service Managers n.e.c.

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3411	Enrolled Nurses
3421	Community Service Workers
3491	Ambulance Officers
3493	Aboriginal and Torres Strait Islander Health Workers
3494	Massage Therapists
3911	Police Officers
3993	Sports Persons, Coaches and Officials
3996	Retail Buyers
4621	Nurserypersons
4931	Hairdressers
4984	Florists
5993	Insurance Agents
5996	Flight Service Attendants and Directors and Other Travel Attendants
5999	Other Service Personnel n.e.c.
6143	Bank Workers and Supervisors
6192	Library Assistants
6211	Sales Representatives
6213	Retail and Checkout Supervisors
6311	Teachers' Aides
6312	Family Day Care and Child Care Workers and Nannies
6313	Community Welfare Aides
6314	Personal Care and Nursing Assistants
6321	Hotel Service Supervisors
6391	Dental Assistants
6392	Veterinary Nurses
6393	Prison Officers
6394	Gaming Workers and Supervisors
6395	Beauty Therapists, Natural Remedy and Weight Loss Consultants
6396	Fitness Instructors and Outdoor Adventure Leaders
6397	Travel Agents, Tourist Information Officers and Tour Guides
6399	Other Intermediate Service Workers n.e.c.
8311	Guards and Security Officers
10 IN-PERSON LOW-SKILL	
6131	Receptionists
6191	Enquiry and Admissions Clerks
6212	Motor Vehicle, Caravan and Vehicle Parts Salespersons
6322	Bar Attendants and Supervisors
6323	Waiters and Supervisors
6324	Hospitality Trainees
7312	Bus and Tram Drivers
7313	Automobile Drivers
8113	Switchboard Operators

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8114	Couriers and Postal Delivery Officers
8115	Betting Clerks
8211	Sales Assistants
8291	Cashiers and Checkout Operators
8292	Ticket Sellers and Transport Conductors
8293	Street Vendors and Door to Door Salespersons
8294	Tele Marketers
8295	Sales Demonstrators and Models
8296	Service Station Attendant
8297	Sales and Service Trainees
8299	Other Elementary Sales Workers n.e.c.
8312	Ticket Collectors, Ushers, Luggage Porters and Doorpersons
8313	Domestic Housekeepers
8319	Other Elementary Service Workers n.e.c.
9932	Fast Food Cook

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